MARKET ANALYSIS SERVICE

1979 ANNUAL PRESENTATION

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ABOUT INPUT

THE COMPANY

INPUT provides planning information, analysis, and recommendations to managers and executives in the information processing industries. Through market research, technology forecasting, and competitive analysis, INPUT supports client management in making informed decisions. Continuing services are provided to users and vendors of computers, communications, and office products and services.

The company carries out continuous and in-depth research. Working closely with clients on important
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data, then develop
innovative ideas t
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access to data on w
and continuous consu

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UNITED STATES, West Coast
2471 East Bayshore Road
Suite 600
Palo Alto, California 94303
(415) 493-1600
Telex 171407

UNITED STATES, East Coast
Park 80 Plaza West-1
Saddle Brook, New Jersey 07662
(201) 368-9471

UNITED KINGDOM
INPUT Europe
Empire House
414 Chiswick High Road
TF

vice Company, Ltd.
No. 12-7 Kita Aoyama
U

-9 Merriwa Street
on N.S.W. 2072

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AUTHOR
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Planning Services for Management

MARKET ANALYSIS SERVICE

1979 ANNUAL PRESENTATION

INFORMATION PROCESSING SERVICES

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MARKET ANALYSIS SERVICE

ANNUAL PRESENTATION

1979

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I. INTRODUCTION

I. INTRODUCTION

- NATURE OF THE PRESENTATION
- SOURCES OF INFORMATION
- AGENDA

NATURE OF THE PRESENTATION

- ISSUE ORIENTED BUT RESEARCH SUPPORTED
- BASED ON WORK SINCE THE 1978 PRESENTATION
- CONCENTRATION ON:
  - SOFTWARE
  - 'TRANSPARENT' HARDWARE
- TAILORED TO YOUR INTERESTS

SOURCES OF INFORMATION

- USER RESEARCH
  - USER PANEL OF OVER 500 COMPANIES
  - OVER 3,000 FORMAL PROFESSIONAL INTERVIEWS ANNUALLY
- VENDOR RESEARCH
  - OVER 500 FORMAL PROFESSIONAL INTERVIEWS
  - ADDITIONAL 500 CONTACTS
  - CONSTANT CONTACT AT SENIOR EXECUTIVE LEVEL
  - DATA BASE OF COMPANIES IN CAMP
- EXPERTISE OF SENIOR STAFF

EDP USER PANEL RESPONDENT PROFILE

PROFILE CHARACTERISTIC	COMPANY SIZE IN TERMS OF ANNUAL SALES/REVENUES			
	<$100 MILLION	$101 - 999 MILLION	>$1000 MILLION	OVERALL
NUMBER OF RESPONDENTS	157	227	45	429
AVERAGE ANNUAL SALES (MILLIONS)	$ 49.1M	$ 328.5M	$ 3748.7M	$ 595.4M
AVERAGE TOTAL EMPLOYEES	990	4070	20,625	4736
AVERAGE EDP EMPLOYEES	34	67	294	80
EDP EMPLOYEES PER 100 TOTAL EMPLOYEES	3.4	1.6	1.4	1.7
AVERAGE EDP BUDGET (MILLIONS)	$ 1.0M	$ 2.2M	$ 10.5M	$ 2.6M
EDP BUDGET PERCENT OF ANNUAL SALES	2.0%	0.7%	0.3%	0.4%
EDP BUDGET PER EDP EMPLOYEE	$28,892	$ 32,257	$35,572	$33,052
EDP BUDGET PER TOTAL EMPLOYEE	$ 1,002	$ 529	$ 508	$ 555

SOURCE: 1979 INPUT EDP USER PANEL

"INFORMATION" VERSUS "COMPUTER" SERVICES

- USER BUYS INFORMATION HANDLING
- COMPUTER IS SMALL PART OF THE VEHICLE
  - DELIVERY SYSTEM
  - SOFTWARE
  - PEOPLE
- INCREASINGLY TEXT AS WELL AS DATA

APPLICATIONS

- MAIL LISTS
- IS & R

II. EDP ENVIRONMENT

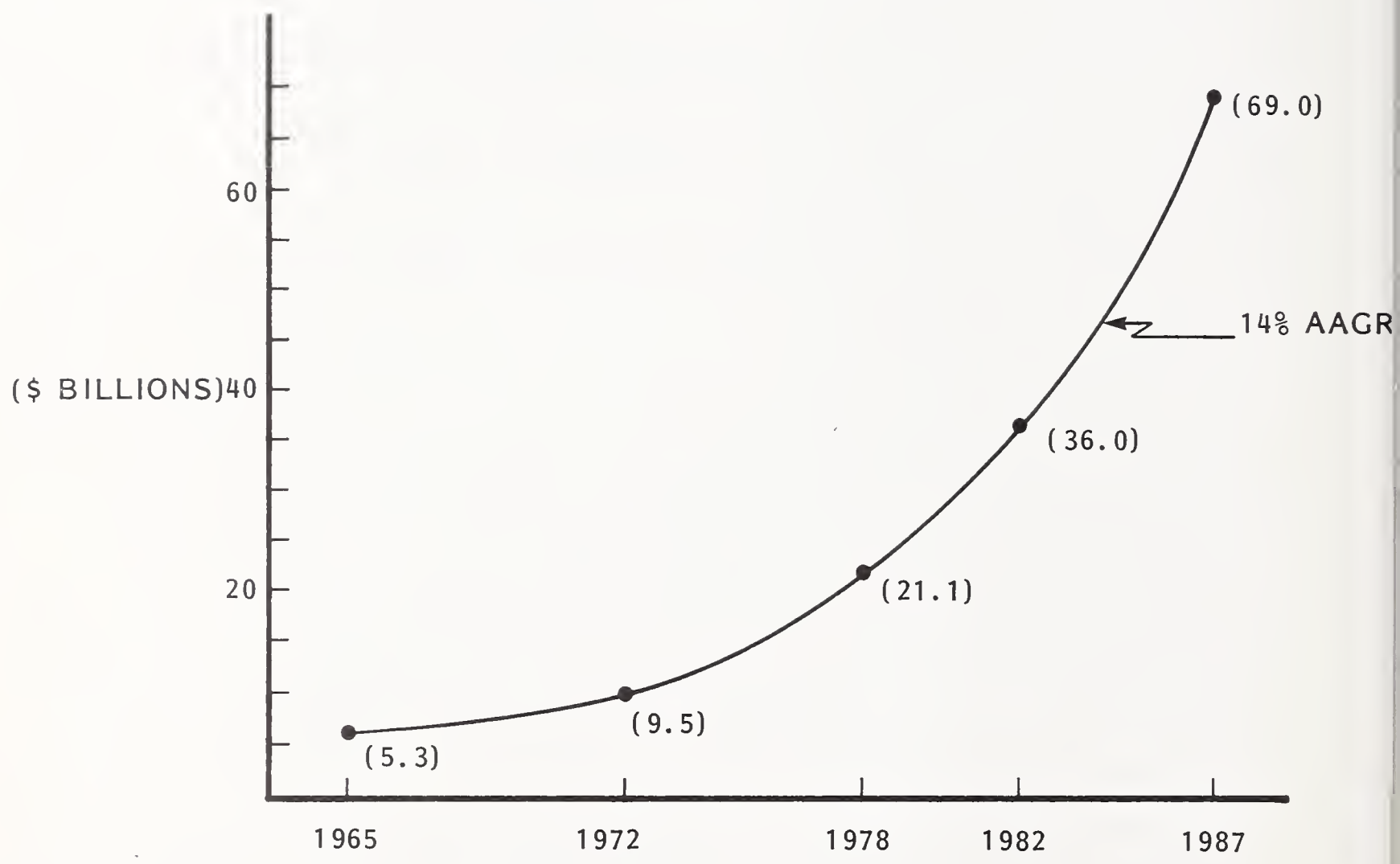
AGENDA

II. EDP ENVIRONMENT

- IBM FUTURE
- DISTRIBUTED DATA PROCESSING
- NETWORK IMPLEMENTATION
- PRODUCTIVITY IMPROVEMENT

PROJECTED REVENUES

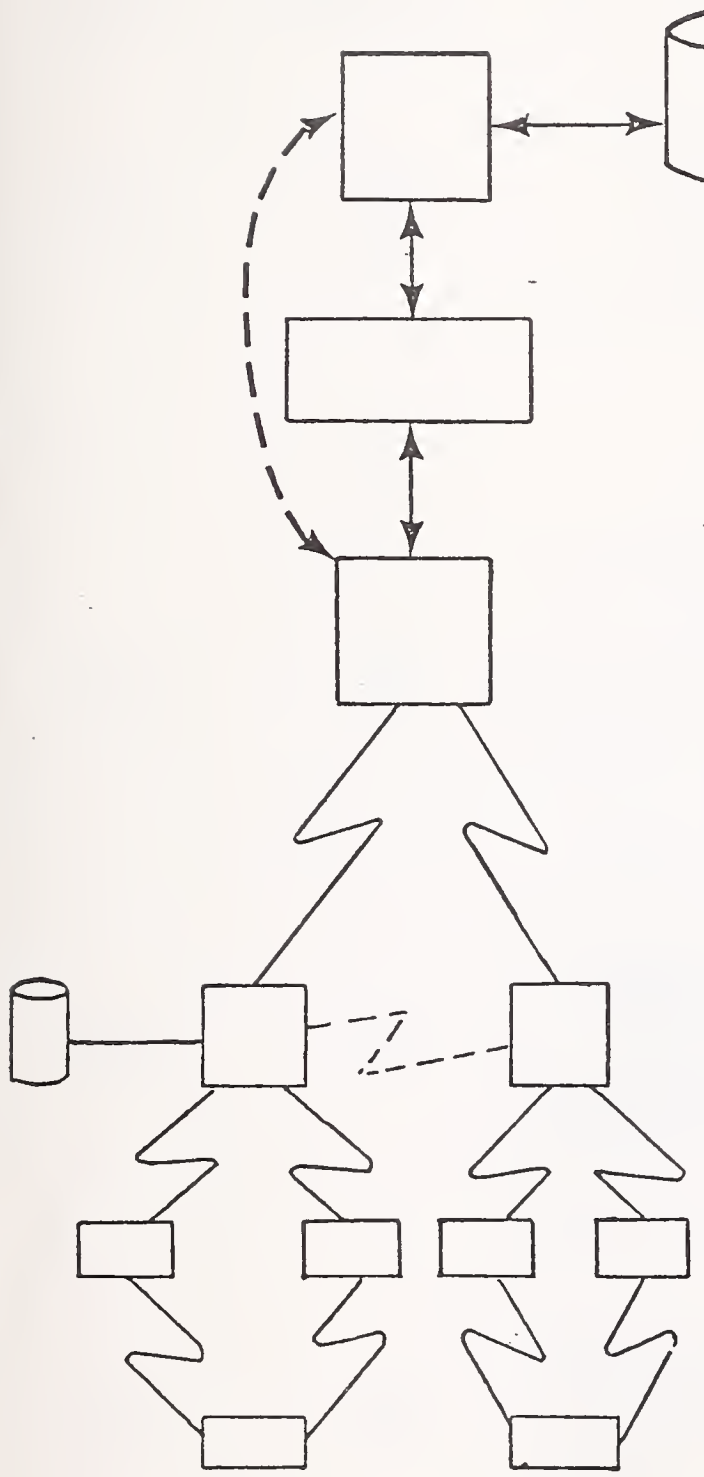
($ BILLIONS)



SOURCE: INPUT FORECAST

IBM FUTURE

CURRENT & PROJECTED PRIORITIES - 1978

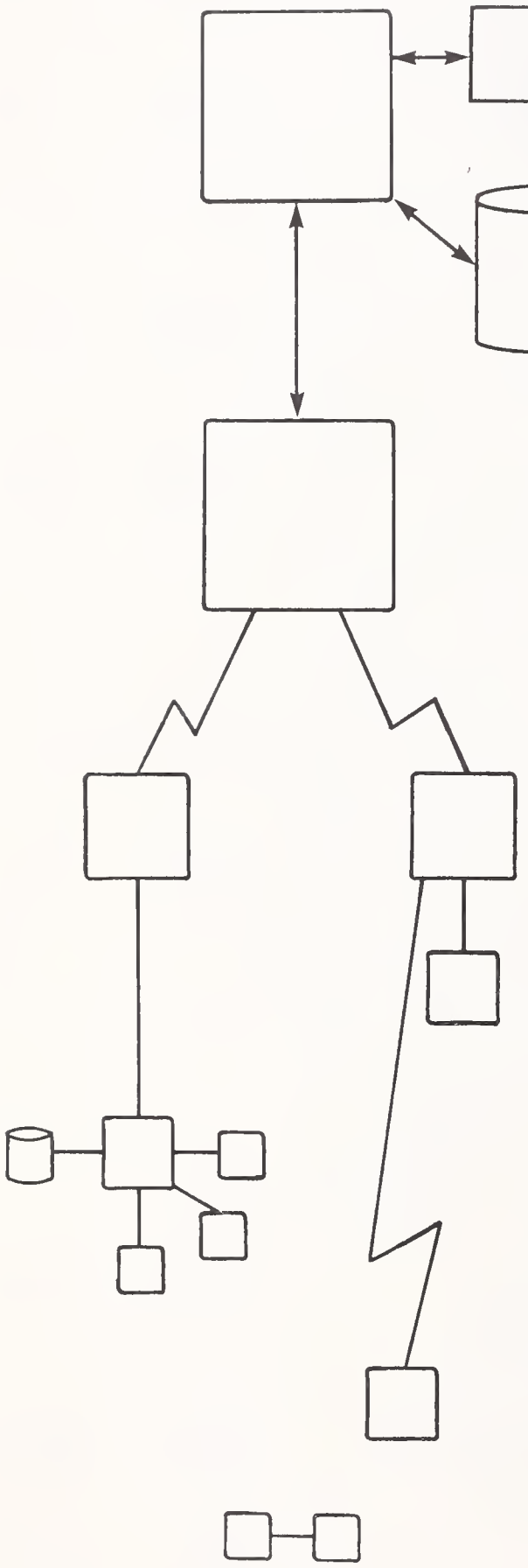


TECHNOLOGY	PRIORITY CURRENT	1982	1987
SECONDARY STORAGE & MEMORY	(4)	(4)	(2)
PCM 370/30XX	(1)	(7)	(6)
MVS/IMS VTAM	(3)	(2)	(7)
370X 3790 MINIS TERMINALS	(2)	(1)	(4)
WORD & TEXT PROCESSING	(5)	(3)	(1)
REMOTE COMPUTING SERVICES	(6)	(6)	(5)
MICROS	(7)	(5)	(3)

IBM FUTURE

CURRENT AND PROJECTED PRIORITIES - 1979

TECHNOLOGY	PRIORITY CURRENT	PRIORITY 1985
SECONDARY STORAGE & MEMORY	(3)	(1)
OPERATING SYSTEMS, DBMS COMMUNICATIONS SOFTWARE DDP	(1)	(6)
MINICOMPUTERS TERMINALS REMOTE SOFTWARE	(2)	(4)
WORD PROCESSING TEXT PROCESSING ELECTRONIC OFFICE	(3)	(1)
REMOTE COMPUTING SERVICES	(5)	(5)
MICROCOMPUTERS	(6)	(3)



IBM RESEARCH AND DEVELOPMENT

- SPENT $1.3B IN 1978
  - 6% OF REVENUE
  - 22% OF PROFIT
- ACCOUNTS FOR NEARLY 50% OF ALL R&D IN INFORMATION PROCESSING INDUSTRY
- PLANNED DUPLICATION OF RESEARCH PROJECTS

IBM STATUS

- DELIVERY SCHEDULES
  - 4300
  - 303X NO PROBLEM
- SOFTWARE PROBLEMS
  - SYSTEM/38
  - NEW LARGE SYSTEMS
- PERIPHERALS
  - 3880 POTENTIAL FOR DBMS ENHANCEMENTS
  - COLORED DISPLAYS
  - EXTENDED PRINTING CAPABILITY

- FINANCIAL CONSIDERATIONS
  - CHANGED LEASE/PURCHASE RATIO
  - AFFECTS 3RD PARTIES
  - ROI ON 303X TAKES LONGER
- MARKETING STRATEGY
  - QUANTITY DISCOUNTS
  - OEM MARKETS (SERIES/1 - 3101 TERMINAL)
  - END USER ORIENTATION

- OFFICE PRODUCTS
  - GROWING RAPIDLY
  - NOT AS PROFITABLE
  - COMPETITION
  - DIFFERENT MARKETING
  - INTRODUCING NEW PRODUCTS
- DDP AND COMMUNICATIONS
  - 8100/4300 APPROACH TO DDP
    - 8100 FOR LARGE USERS FOR SATELLITE PROCESSING
    - 4300 TO BE SOLD DIRECTLY TO END USERS
  - SNA - 'RELUCTANT BRIDE'
  - STILL NEED NEW COMMUNICATIONS FRONT END (3705 REPLACEMENT)

IBM STRATEGIES

- CONTINUE WITH H/F/S
- CUSTOM LSI IN PRODUCTS NOT MICROCOMPUTERS
- REDUNDANT CIRCUITRY
  - MAINTENANCE (REMOTE DIAGNOSTICS OR IMPROVED MTBF)
  - FUTURE APPLICATION
- MORE PRICE SEPARATION
- ENHANCED SUPPORT CENTER CONCEPTS
- EXTEND 303X MARKETABILITY
  - 'TRADE IN' PROGRAM
- KEEP OUT JAPANESE

IBM AND SYSTEMS SOFTWARE

- ACCELERATING UNBUNDLING OF SYSTEMS SOFTWARE FROM HARDWARE
- IBM WILL CONTINUE TO MOVE OPERATING SYSTEM INTO FIRMWARE IN AN EVOLUTIONARY FASHION
  - A MIGRATION PATH MUST EXIST TO MOVE USERS UP THE PRODUCT LINE
  - SYSTEM PERFORMANCE CAN BE INCREASED AS REPETITIVE OPERATING SYSTEM FUNCTIONS ARE MOVED INTO HARDWARE
  - SOFTWARE MAINTENANCE COSTS CAN BE REDUCED BY FORCING STANDARDIZATION OF SYSTEMS FUNCTIONS
  - PLUG-COMPATIBLE MANUFACTURERS TO IBM ARE KEPT ON THE DEFENSIVE

IBM AND SYSTEMS SOFTWARE

- IBM'S HARDWARE/FIRMWARE/SOFTWARE STRATEGY
  - PROTECTS HARDWARE
  - DISCOURAGES PLUG COMPATIBLES
  - DISCOURAGES SYSTEMS SOFTWARE MODIFICATIONS
  - FACILITATES COMMUNICATIONS AND DDP
  - SYSTEM BUILDERS FOR NON-EDP USERS
  - ENCOURAGES USE OF SECONDARY STORAGE
  - USER FRIENDLY SYSTEMS

- STRATEGIES FOR SERVICES
  - INTEGRATED SYSTEM OF COMMUNICATIONS, HARDWARE AND SOFTWARE AFTER 1980
  - PROCESSING SERVICES
    - 'ENHANCED HARDWARE SERVICES'
    - INDUSTRY SPECIALIZED
  - SOFTWARE
    - SIGNIFICANT IMPACT ON RCS IN U.S. IN THE 1980'S
- GENERAL BUSINESS GROUP
  - PROVIDE SYSTEMS
  - BOTH OPD AND GSD

PENDING ANNOUNCEMENTS

- INTELLIGENT PABX FOR U.S. POSSIBILITY
- LARGE SCALE SYSTEMS FOR SECOND HALF

  1980

  - DELIVERY SCHEDULE
  - FINANCIAL CONSIDERATIONS
  - COMPETITION
  - SOFTWARE
  - RELATIONAL DBMS
  - ON SAME PRICE/PERFORMANCE CURVE AS

    THE 4300

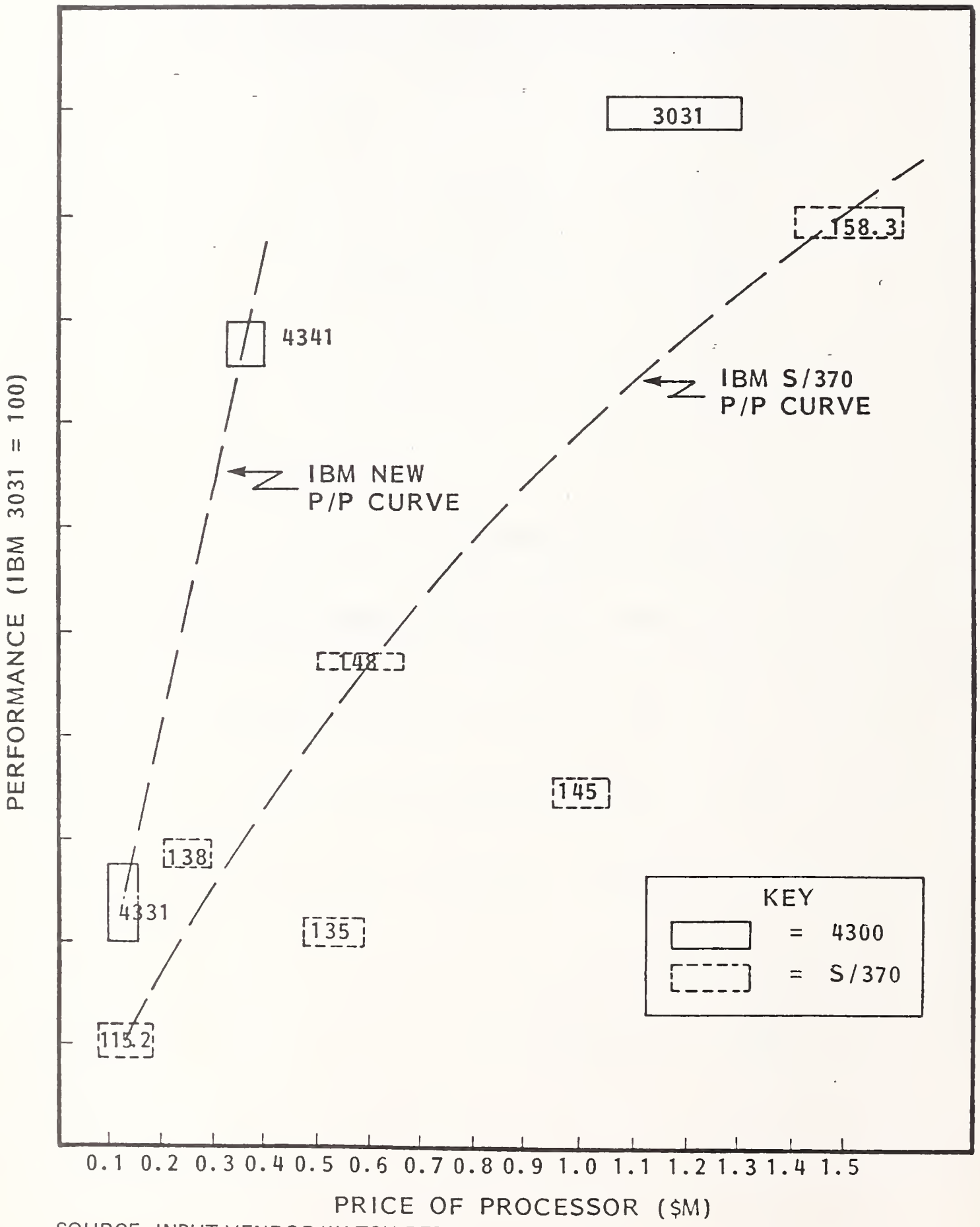
- IMAGE PROCESSING

  - VIDEODISK

- EXTEND 4300
- DOS ON SERIES/1 (?)

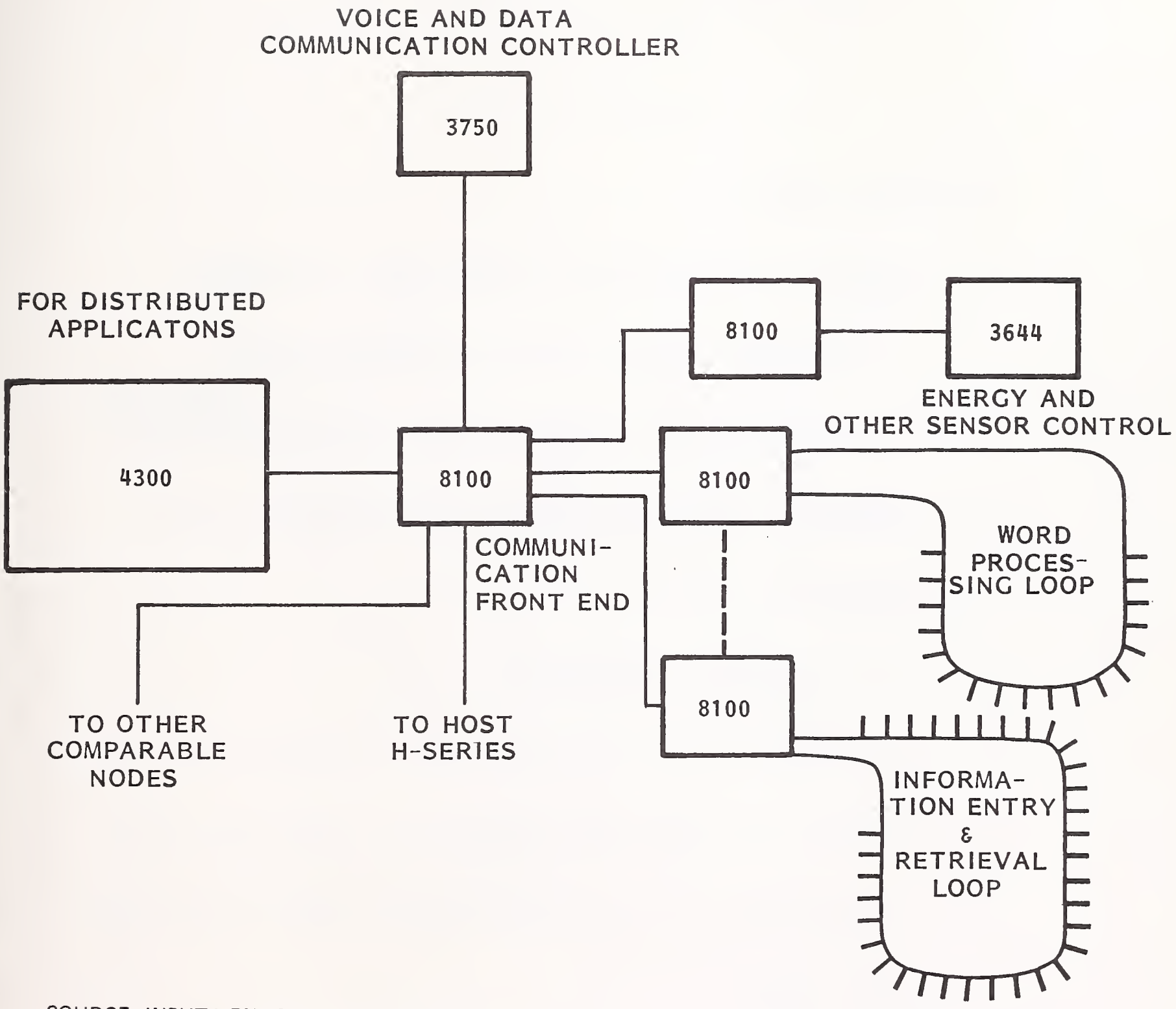
PRICE/PERFORMANCE CHART

IBM 4300 SERIES AND SYSTEM/370



SOURCE: INPUT VENDOR WATCH REPORT

IBM DDP ENVIRONMENT



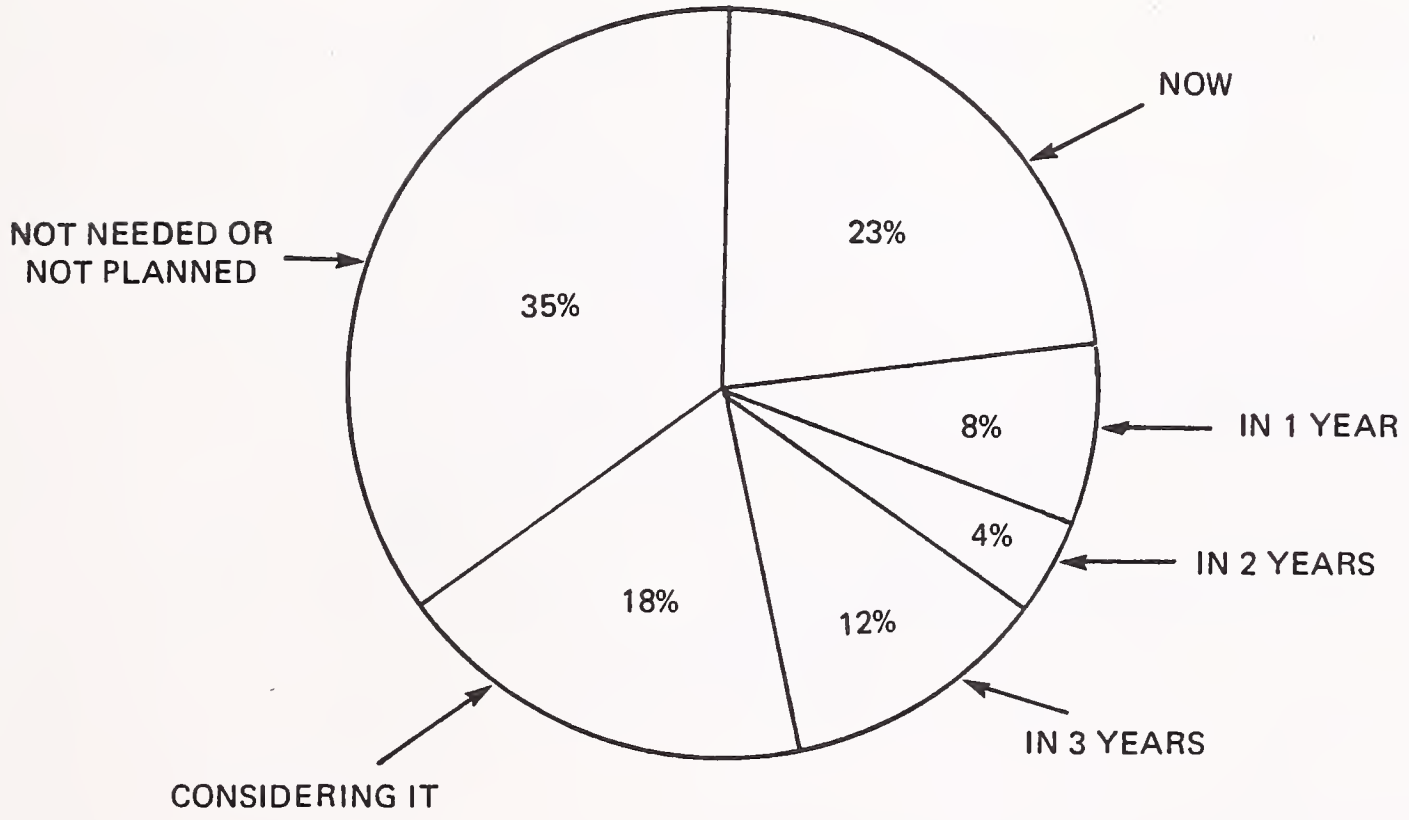
SOURCE: INPUT VENDOR WATCH REPORT

DISTRIBUTED DATA PROCESSING

- DRIVING FORCES
  - DISSATISIFACTION WITH CENTRAL DATA PROCESSING
    - RESPONSE TIME WITH CURRENT APPLICATIONS
    - LONG LEAD TIME FOR NEW APPLICATION DEVELOPMENT
  - COMPLEXITY AND DEVELOPMENT PROBLEMS WITH LARGE SYSTEMS
- NOT UNIVERSALLY ACCEPTED
  - LITTLE CHANGE IN THE LAST YEAR
  - NETWORK AND SOFTWARE PROBLEMS IN IMPLEMENTATION
  - FUNDAMENTAL QUESTION OF BENEFIT VERSUS COST FOR MANY USERS

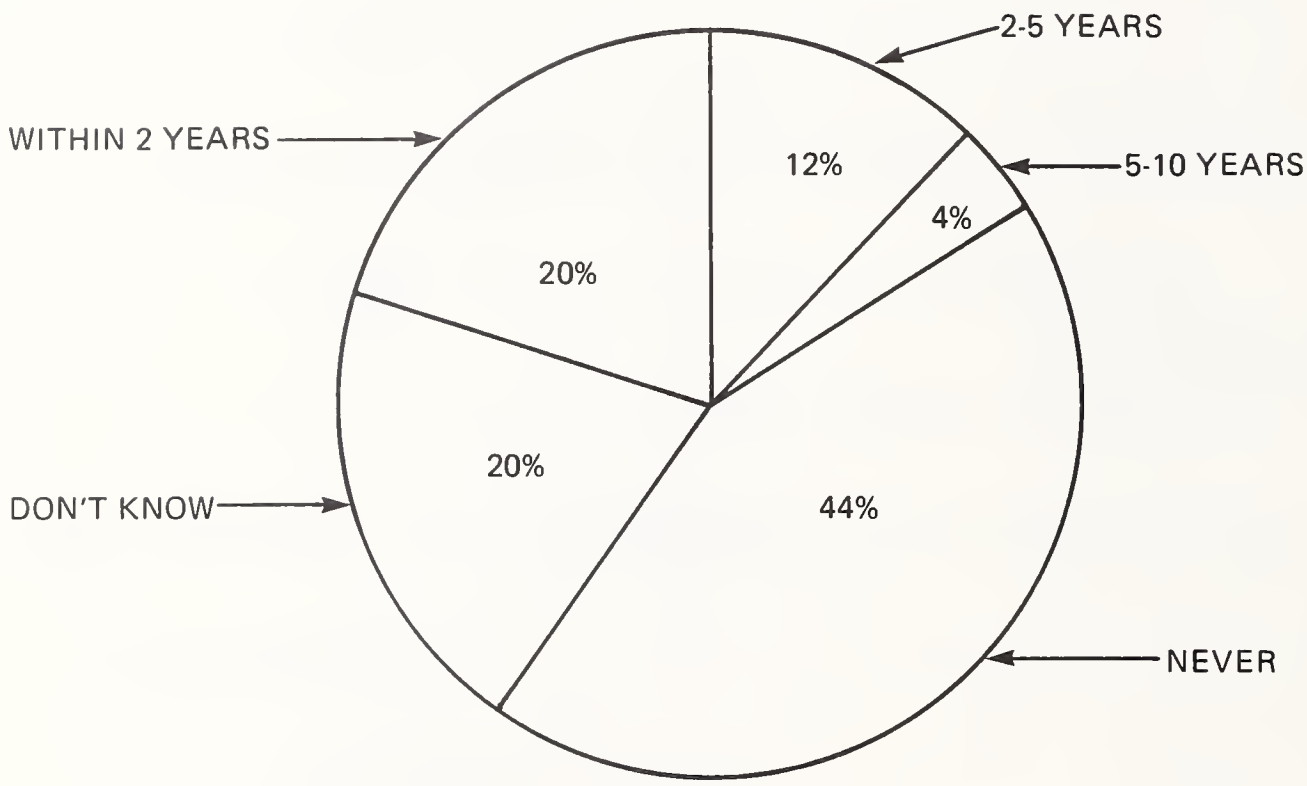
TIMING REQUIREMENTS FOR DISTRIBUTED DATA PROCESSING

(36 LARGE COMPANIES)



SOURCE: INPUT SYSTEMS SOFTWARE STUDY

EDP MANAGER NEEDS FOR DISTRIBUTED DATA BASE CAPABILITY



SOURCE: INPUT SYSTEMS SOFTWARE STUDY

NETWORK IMPLEMENTATION

- THE PLAYERS
  - COMPUTER AND OFFICE EQUIPMENT MANUFACTURERS
  - COMMUNICATIONS CARRIERS
  - COMPUTER SERVICES COMPANIES
  - MAJOR CORPORATIONS
- THE CONSIDERATIONS
  - IBM SYSTEM NETWORK ARCHITECTURE (SNA)
  - AT&T ADVANCED COMMUNICATIONS SYSTEM (ACS)
  - VALUE ADDED NETWORKS (VAN)

SNA

- POTENTIAL ADVANTAGES
  - CENTRALIZED CONTROL
  - NETWORK MANAGEMENT FUNCTION EMPHASIS
  - IBM COMMITMENT
- POTENTIAL DISADVANTAGES
  - COMMITMENT TO SNA DECREASES CHOICE
  - COSTS MAY BE HIGH

AT&T

ACS

- POTENTIAL ADVANTAGES
  - GEOGRAPHIC COVERAGE
  - TECHNOLOGICAL, MANUFACTURING & SERVICE EXPERTISE
  - RELIABILITY AND STABILITY STANDARDS
  - UNDERSTANDING OF PRIVACY AND SECURITY
  - EXPERIENCE IN DEALING WITH REGULATORY AGENCIES
- POTENTIAL DISADVANTAGES
  - RELATIVELY LITTLE DATA PROCESSING EXPERIENCE
  - LACK OF EXPERIENCE WITH TOTAL SYSTEMS SUPPORT AND MARKETING
  - POTENTIAL OVER-ENGINEERING EFFECT ON COST

VALUE ADDED NETWORK SERVICES (VANS)

- POTENTIAL ADVANTAGES
  - SKILLED, COMMERCIAL, TECHNICAL SERVICE
  - LOW COST
  - NEW SERVICES (EG. DATA BASES)
- POTENTIAL DISADVANTAGES
  - LIMITED FINANCIAL RESOURCES
  - SMALL NUMBER OF TECHNICAL PERSONNEL
  - LIMITED GEOGRAPHIC COVERAGE

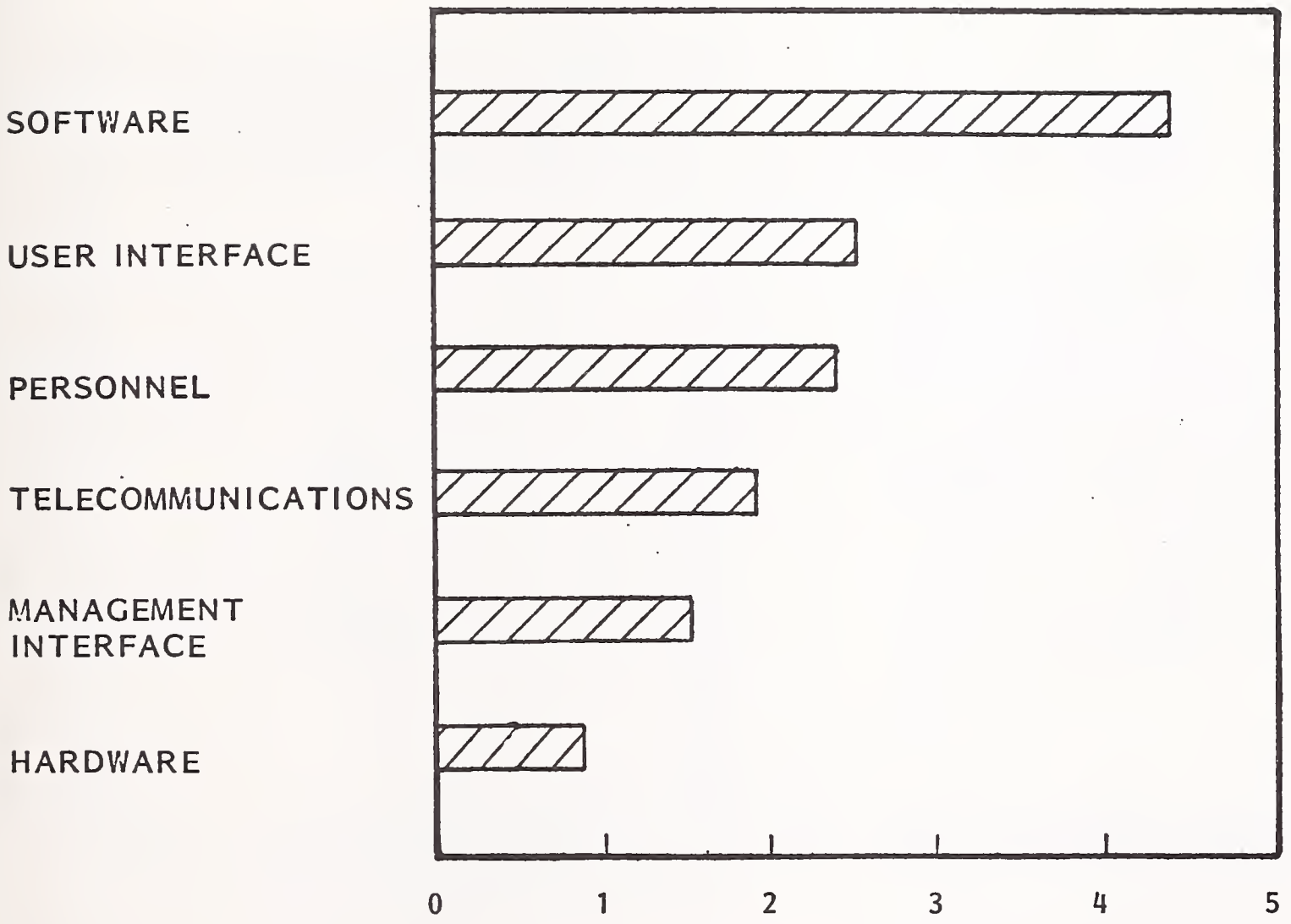
COMPUTER SERVICES COMPANIES

- ADVANTAGES
  - TEST BED FOR SYSTEMS
  - RECOGNIZED IMPORTANCE OF DDP, ON-SITE HARDWARE, COMMUNICATIONS AND OTHER RELATED SERVICES
  - DP AND COMMUNICATIONS EXPERTISE
  - INTERNATIONAL NETWORKS IN PLACE
- DISADVANTAGES
  - COST VIS-A-VIS INTERNAL SERVICE
  - LIMITED RESOURCES
  - DEALING WITH REGULATORY AGENCIES
  - GEOGRAPHIC COVERAGE DOMESTICALLY

PRODUCTIVITY IMPROVEMENT

- IN THE PAST
  - MAXIMIZE MACHINE EFFICIENCY
- IN THE FUTURE
  - MAXIMIZE PEOPLE EFFICIENCY

RELATIVE IMPORTANCE OF IMPROVEMENTS IN THE OVERALL EDP ENVIRONMENT*



*BASED ON COMBINING RESPONDENT ESTIMATE OF NEED WITH RESPONDENT ESTIMATE OF ABILITY TO MAKE IMPROVEMENTS.

SOURCE: INPUT PRODUCTIVITY STUDY

HOW MUCH CAN THE EDP AREA BE IMPROVED?

EDP AREA NEEDING IMPROVEMENT	POTENTIAL IMPROVEMENT RANGE (PERCENT)*
USER INTERFACE	20 - 1000%
MANAGEMENT INTERFACE	20 - 1000%
SOFTWARE	20 - 200%
TELECOMMUNICATIONS	60 - 100%
HARDWARE	25 - 50%
PERSONNEL	20 - 200%

* AS ESTIMATED BY RESPONDENTS

SOURCE: INPUT PRODUCTIVITY STUDY

COMBINED RANKING OF NEED AND ABILITY TO

IMPROVE SOFTWARE DEVELOPMENT ASPECTS

ASPECT TO BE IMPROVED	RELATIVE PAYOFF OF IMPROVEMENTS*
DESIGN	VERY HIGH
PROGRAMMING	LOW-MEDIUM
TESTING	MEDIUM-HIGH
DOCUMENTATION	MEDIUM
USER INTERFACE	HIGH
PROJECT CONTROL	MEDIUM-HIGH
MANAGEMENT INVOLVEMENT	MEDIUM

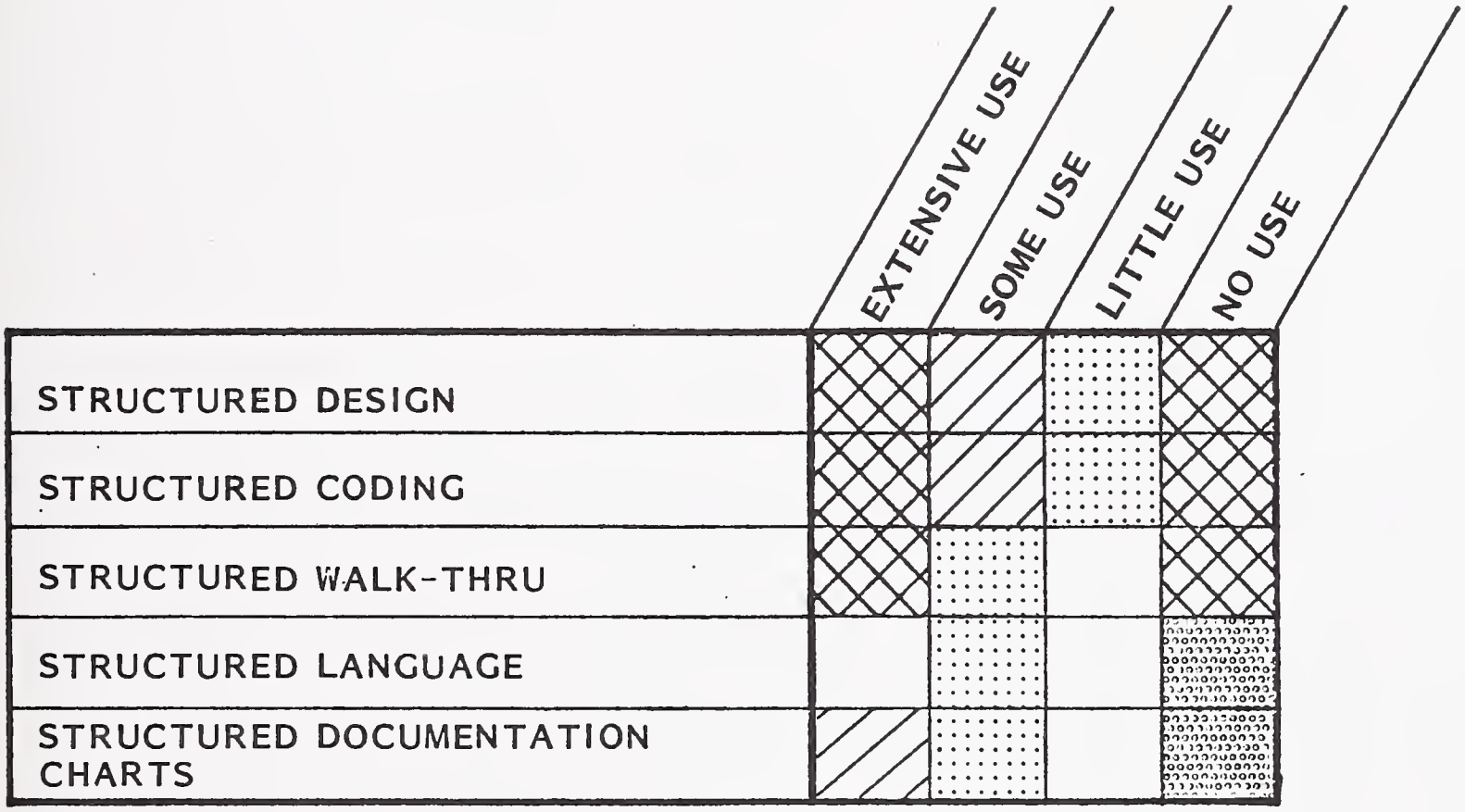
* BASED ON RESPONDENTS' RATING OF NEED FOR IMPROVEMENTS COMBINED WITH THEIR RATING OF ABILITY TO MAKE IMPROVEMENTS

SOURCE: INPUT PRODUCTIVITY STUDY

IMMEDIATE TRENDS

- ON-LINE DEVELOPMENT
- STRUCTURED DESIGN AND DEVELOPMENT
- DATA BASE MANAGEMENT SYSTEMS
- IMPLEMENTATION LANGUAGES
- 'DDP' FOR SYSTEM DEVELOPMENT
  - MAESTRO
  - PROGRAMMER WORKBENCH
  - 'UNIX' BASED SYSTEMS
- USE OF APPLICATIONS PRODUCTS

RESPONDENTS' USE OF STRUCTURED TECHNIQUES



MORE THAN 2/3 OF RESPONDENTS

1/3 TO 2/3 OF RESPONDENTS

LESS THAN 1/3 OF RESPONDENTS

ONE OR TWO RESPONDENTS

NONE

SOURCE: INPUT PRODUCTIVITY STUDY

AUTOMATED APPLICATION DEVELOPMENT SYSTEMS (AADS)

- EVOLUTION FROM DBMS AND DATA DICTIONARY ENVIRONMENT
- DMS/VS AND ADMINS/11 PROVIDE A LIMITED AADS CAPABILITY TODAY
- IBM WILL RELEASE AADS PRODUCTS IN FUTURE

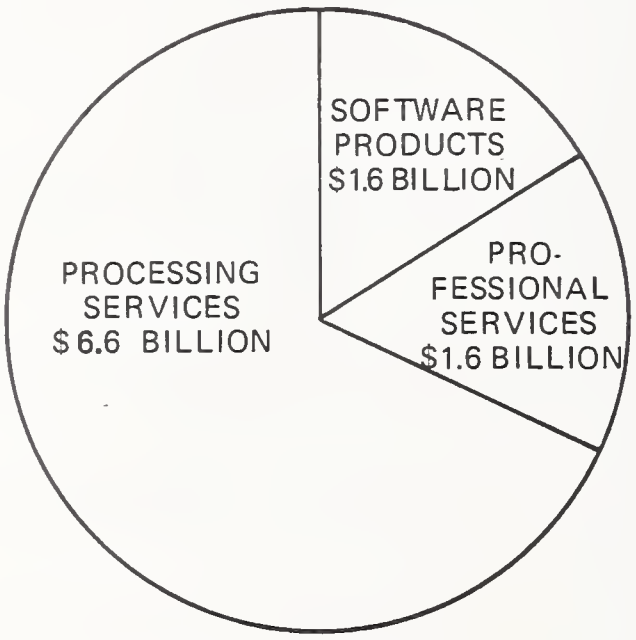
III. COMPUTER SERVICES MARKETS, 1979-1984

AGENDA

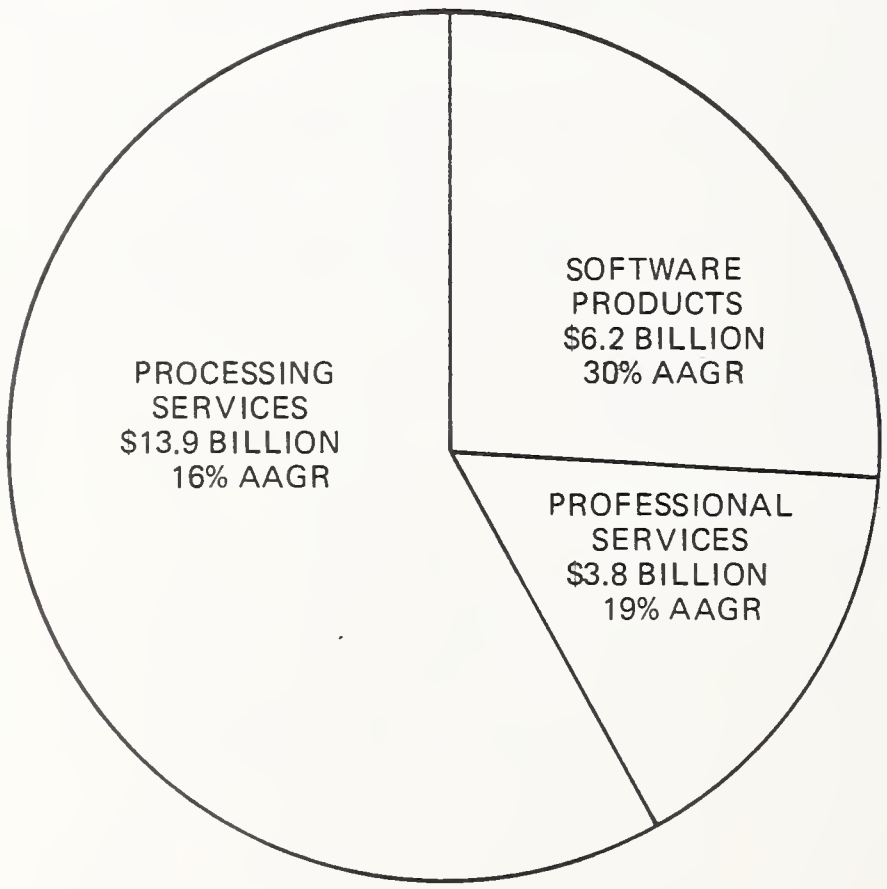
III. COMPUTER SERVICES MARKETS, 1979-1984

- MARKET SIZES AND GROWTH RATES
- INDUSTRY SECTOR MARKETS
- SYSTEMS SOFTWARE MARKETS
- TURNKEY SYSTEMS MARKETS
- PERSONNEL TRAINING
- OFFICE OF THE FUTURE
- INTERNATIONAL ISSUES

U.S. COMPUTER SERVICES MARKET
(CURRENT DOLLARS)



1979 $9.9 BILLION



1984 $23.9 BILLION, 19% AAGR

SOURCE: INPUT FORECAST

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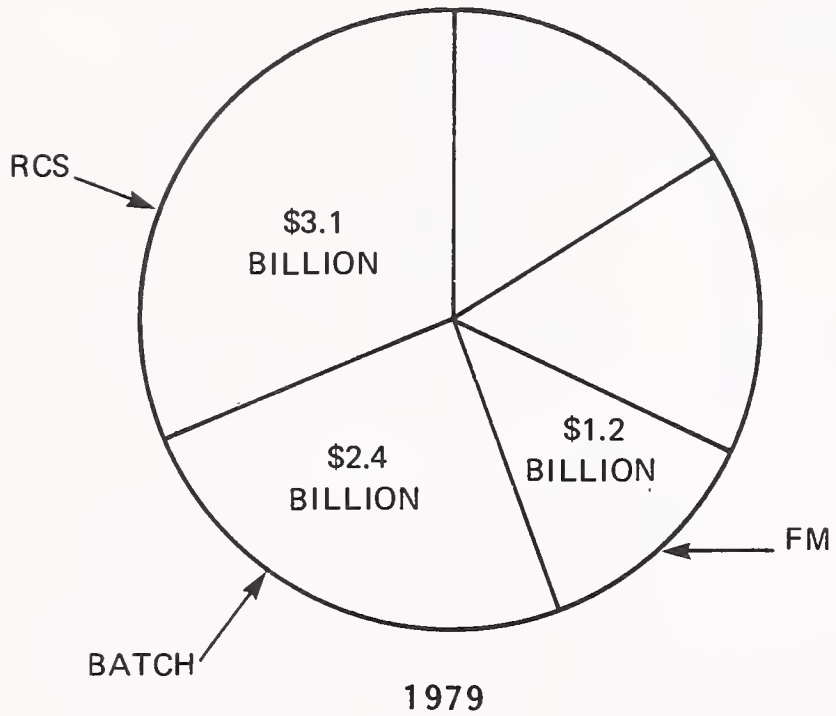
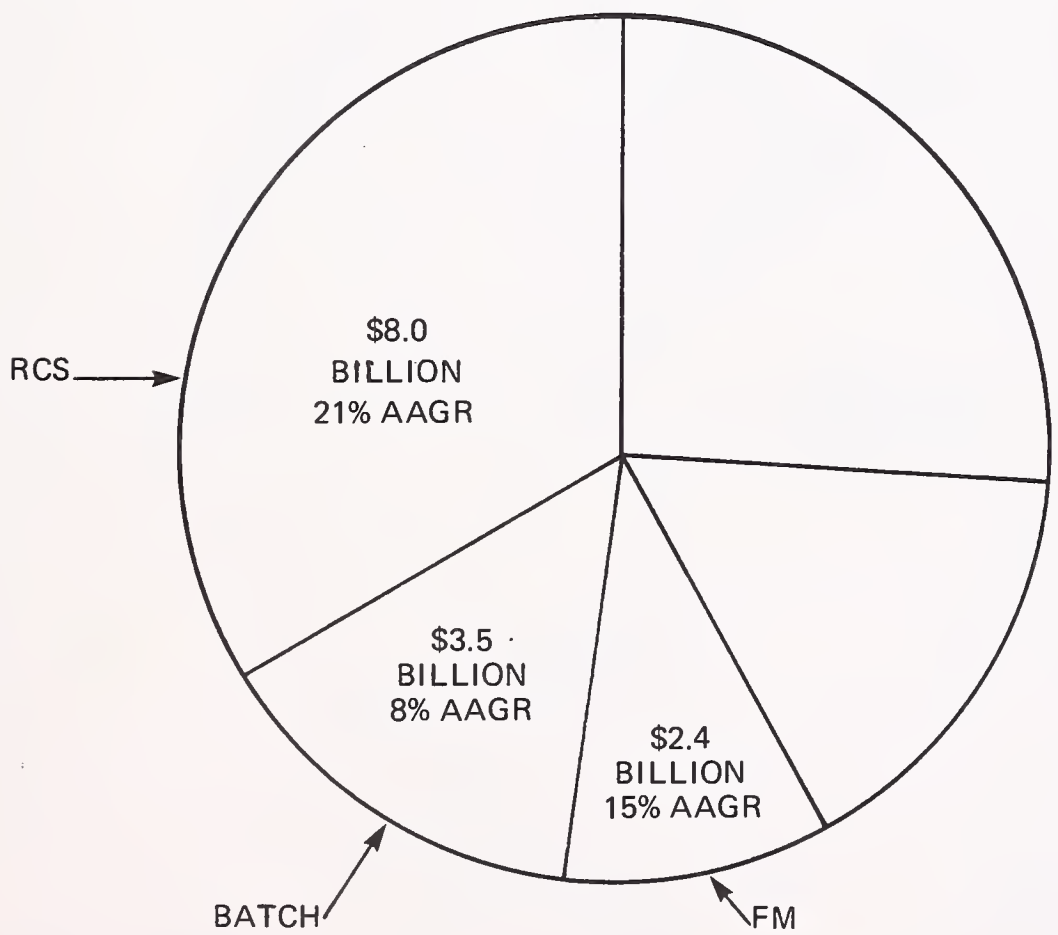
PROCESSING SERVICES MARKETS
BY MODE OF SERVICE



1979



SOURCE: INPUT FORECAST

1984

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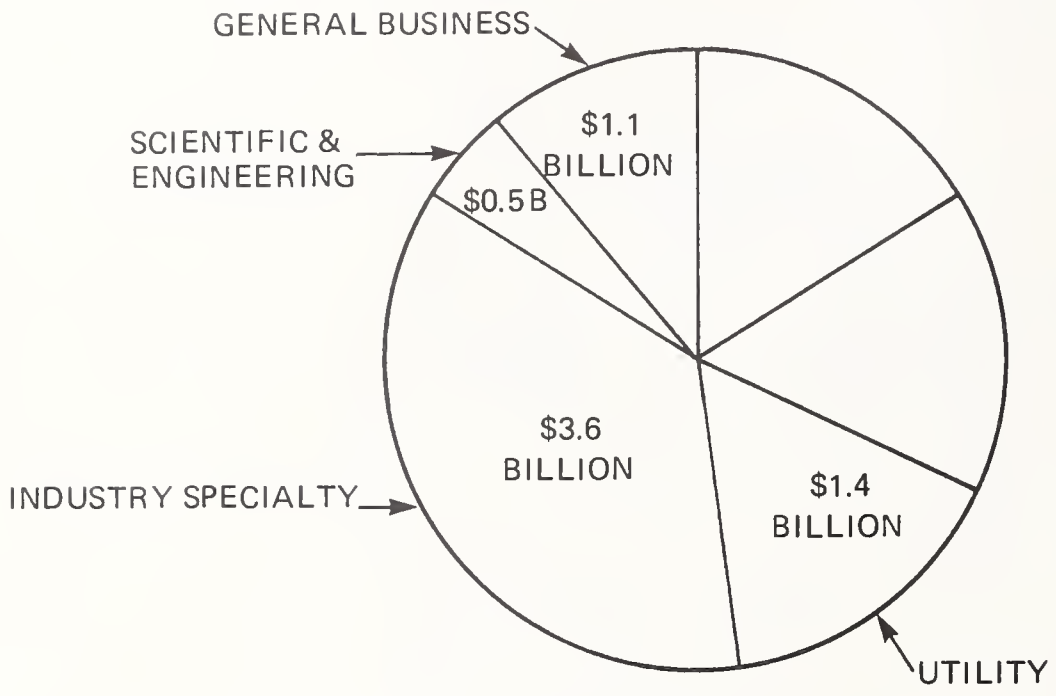
PROCESSING SERVICES MARKETS
- BY TYPE OF SERVICE



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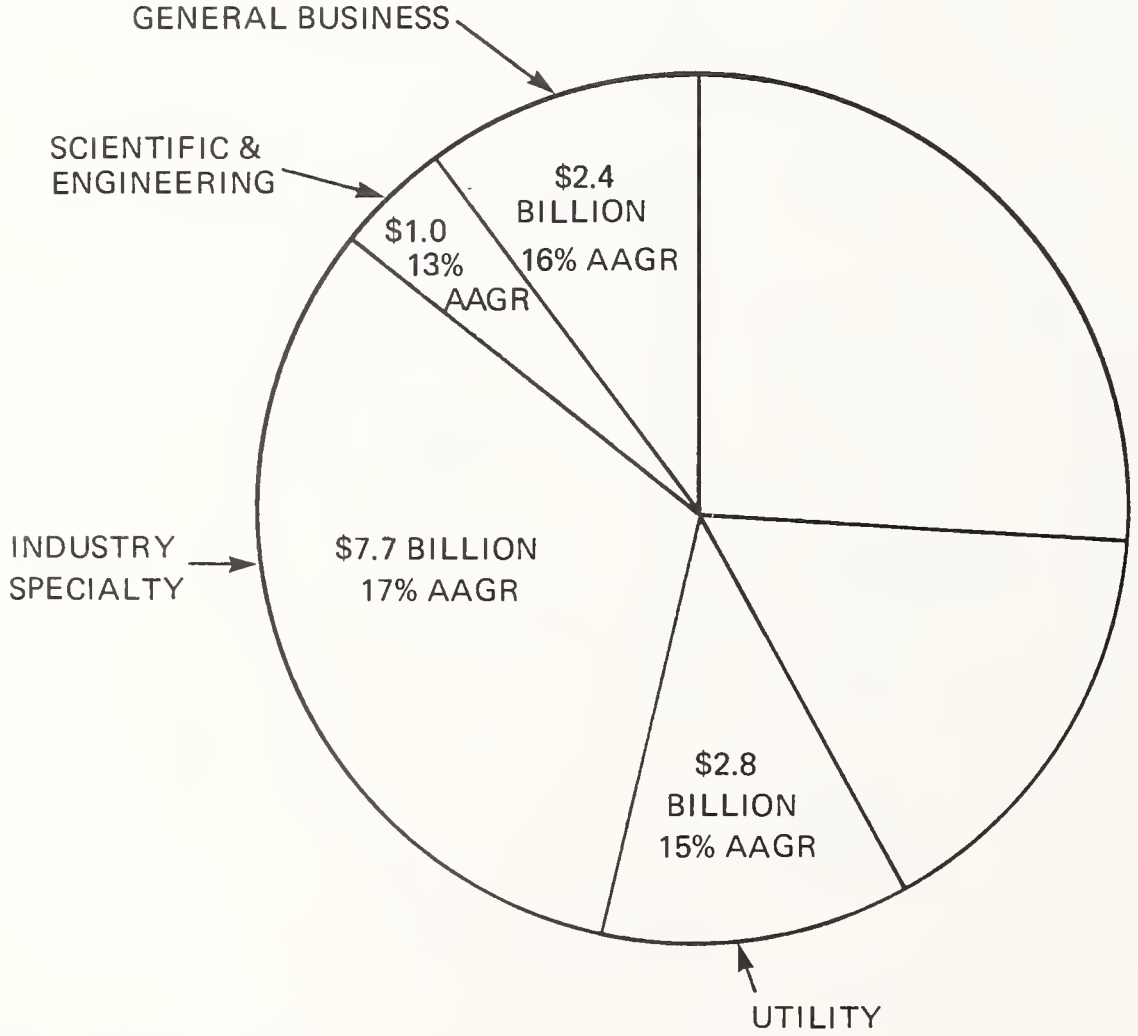

1984

SOURCE: INPUT FORECAST

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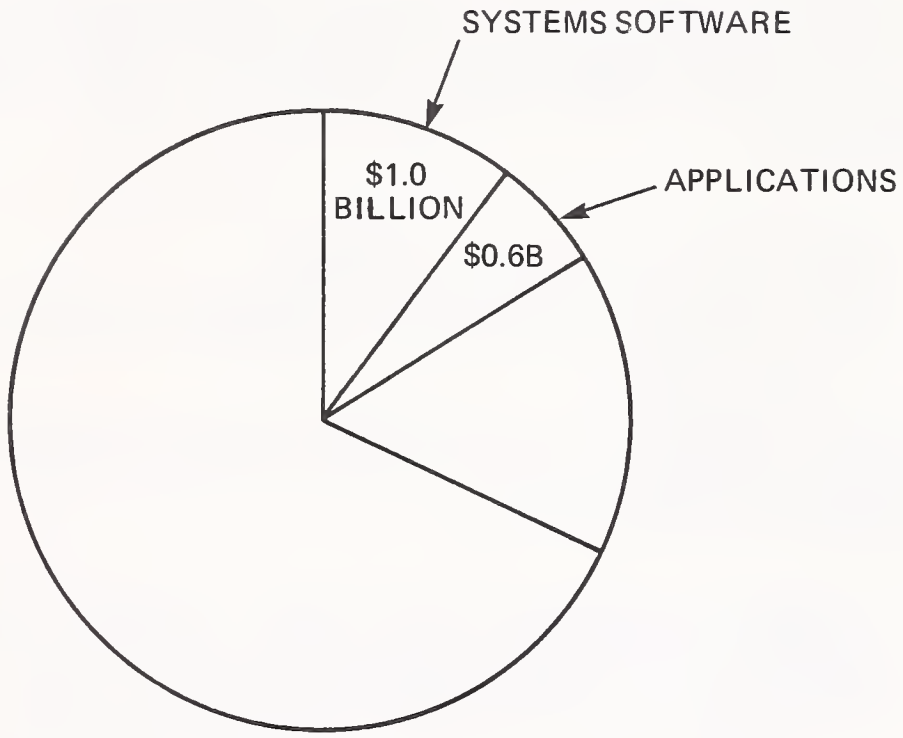
SOFTWARE PRODUCTS MARKETS



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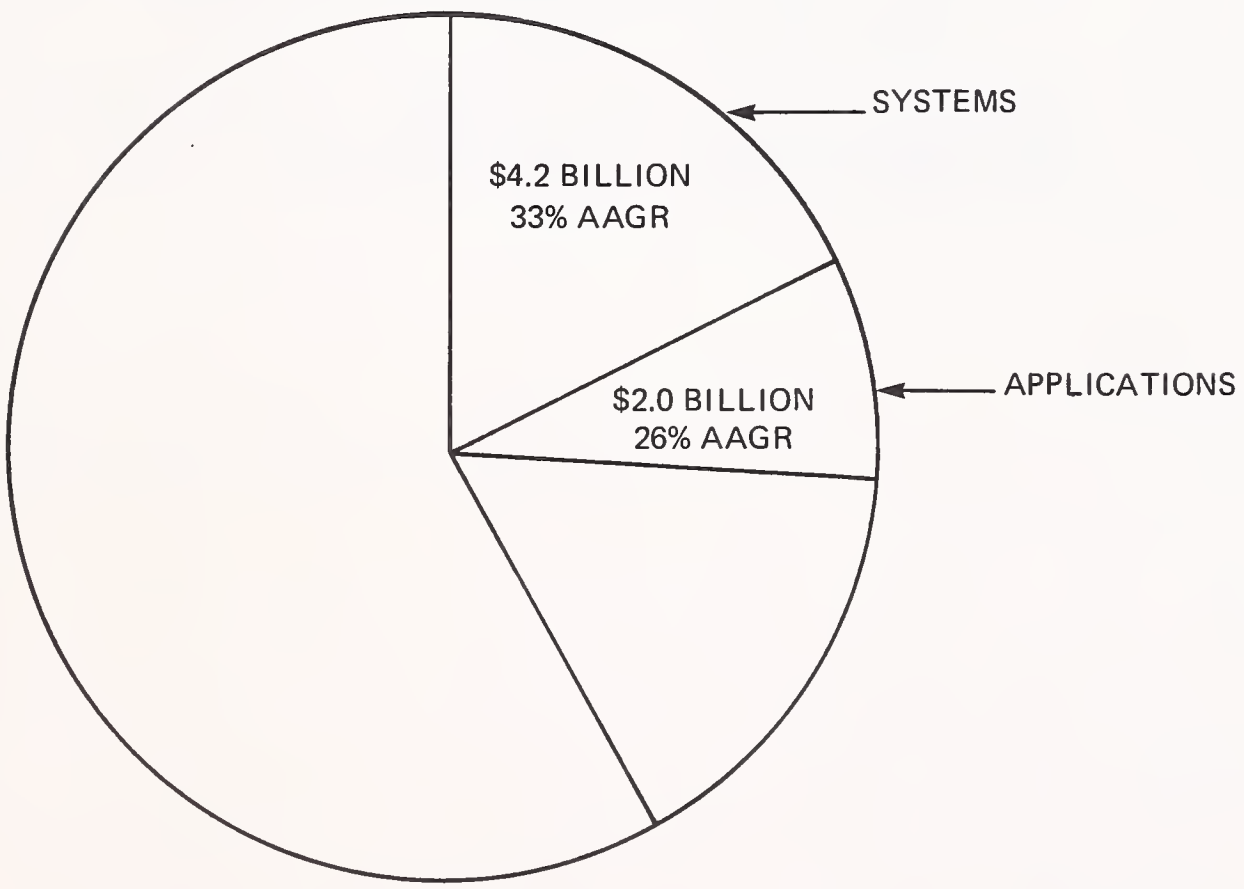

SOURCE: INPUT FORECAST

1984

R9

CHANGE IN 1979 FORECASTS

- SYSTEMS SOFTWARE MARKET INCREASED BY $250 MILLION REFLECTING HARDWARE MANUFACTURER INVOLVEMENT AND GROWTH

  - IBM HAS 33% MARKET SHARE
  - IBM SYSTEMS SOFTWARE GROWTH RATE IS 40% ANNUALLY

- BATCH PROCESSING GROWTH RATES INCREASED TO REFLECT MARKET CONDITIONS

  - GENERAL BUSINESS TO GROW AT 13%
  - OVERALL BATCH MODE TO GROW AT 8%

- SLIGHT ADJUSTMENTS TO MODES OF DELIVERY BASED ON BANKING AND FINANCE INDUSTRY ANALYSIS, BUT OVERALL INDUSTRY SECTOR MARKET SIZE REMAINED THE SAME

- INCREASE IN APPLICATIONS SOFTWARE, PROFESSIONAL SERVICES AND RCS GROWTH RATES

1984 USER SITE HARDWARE SERVICES (USHS)

MARKET IN THE U.S.

TYPE	1984 USHS REVENUE ($M)
GENERAL BUSINESS	$ 50 - 110M
SCIENTIFIC & ENGINEERING	$ 40 - 70M
INDUSTRY SPECIALTY	$440 - 650M
UTILITY	$190 - 290M
TOTAL	$720 - 1,120M

SOURCE: INPUT USER SITE HARDWARE SERVICES STUDY

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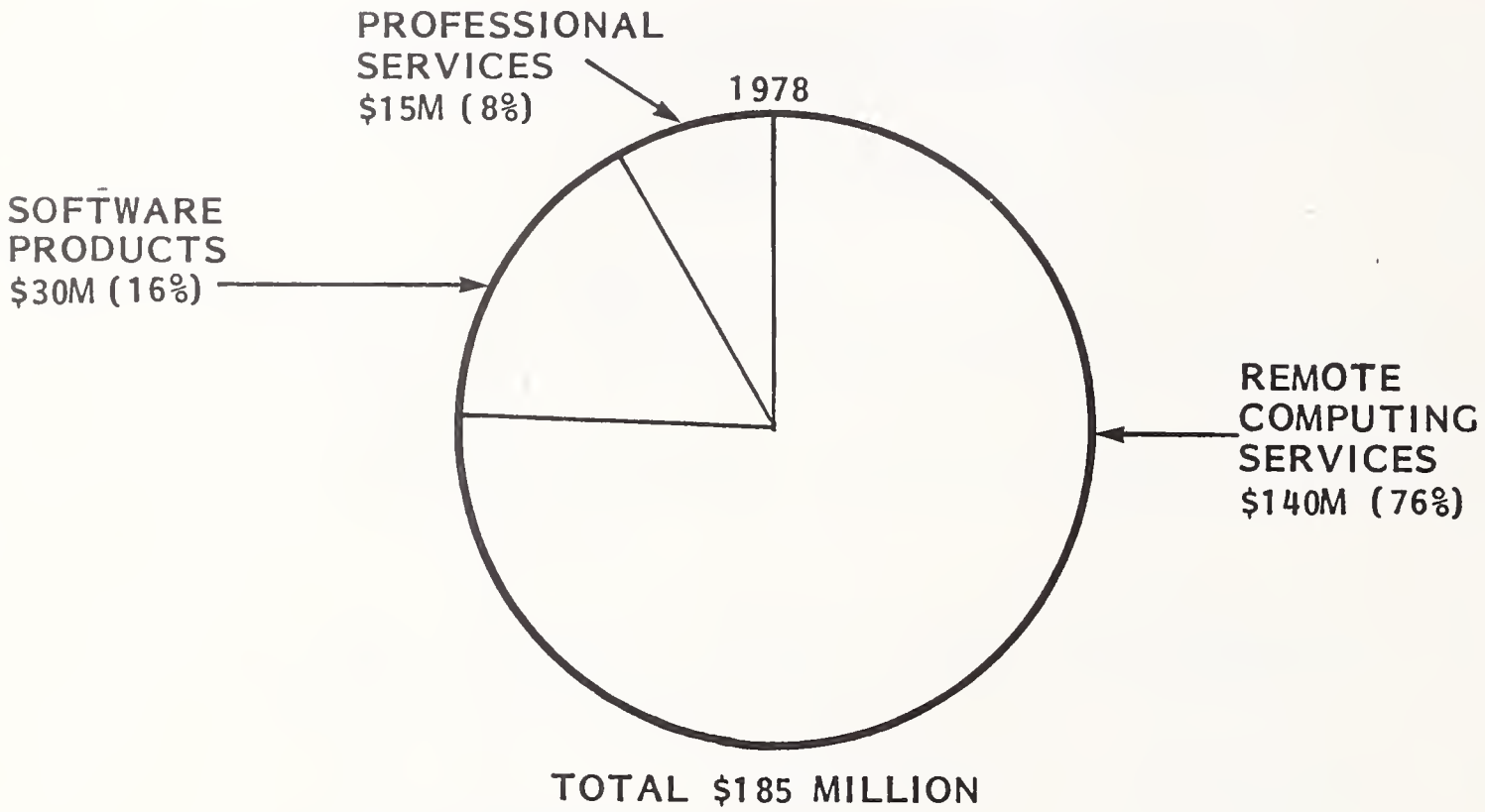
COMPUTER SERVICES EXPENDITURES FOR FINANCIAL MANAGEMENT AND PLANNING SERVICES AND SOFTWARE PRODUCTS BY SERVICE TYPE
1978-1983



STUDY: INPUT FMPS STUDY

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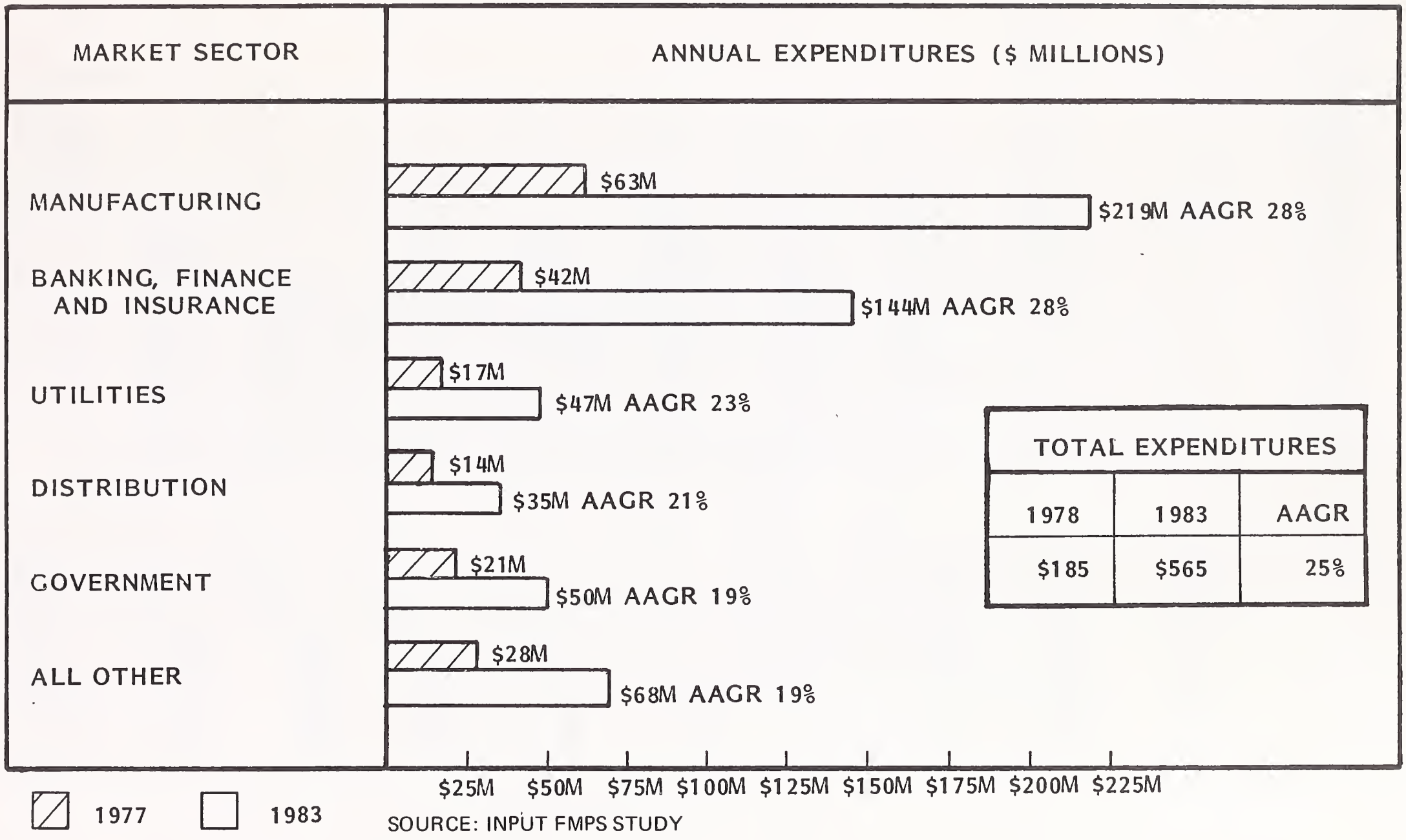
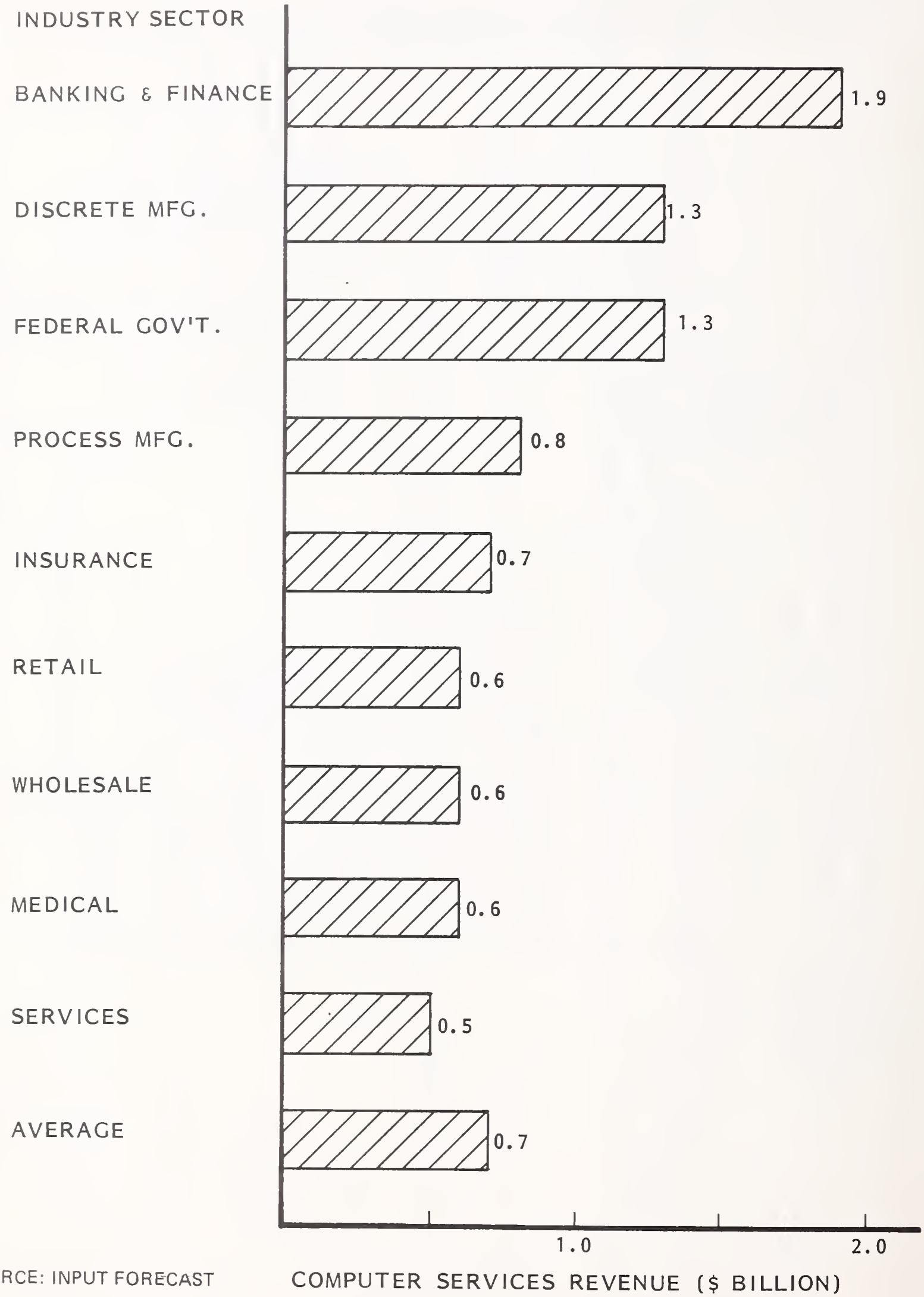
COMPUTER SERVICES EXPENDITURES FOR FINANCIAL MANAGEMENT AND PLANNING SERVICES AND SOFTWARE PRODUCTS BY MARKET SECTOR 1978-1983



TOTAL EXPENDITURES		
1978	1983	AAGR
$185	$565	25%

SOURCE: INPUT FMPS STUDY

1979 COMPUTER SERVICES REVENUE PRODUCTION FOR TOP INDUSTRY SECTORS



SOURCE: INPUT FORECAST

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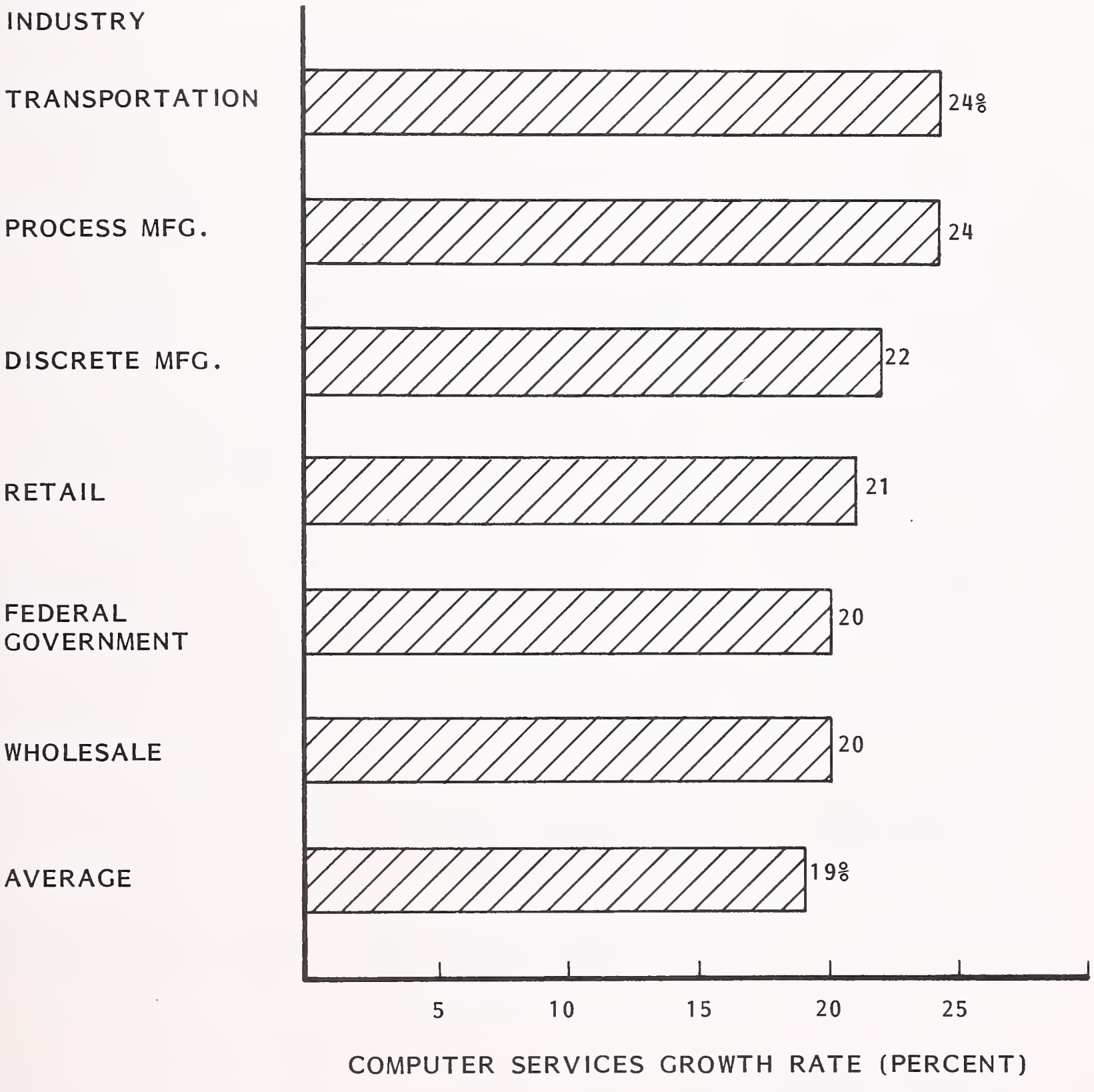
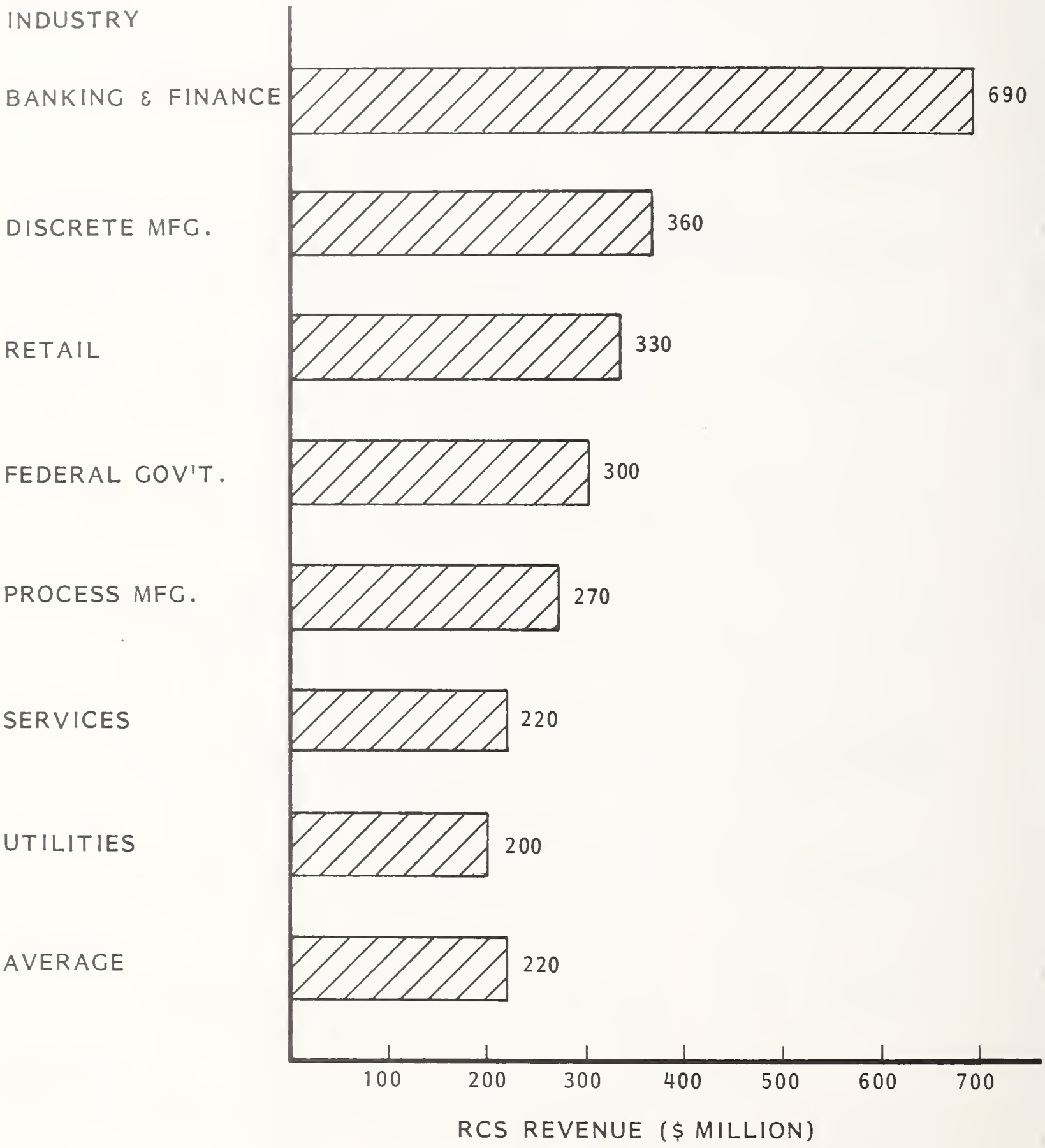
1979-1984 COMPUTER SERVICES GROWTH RATES
TOP INDUSTRY SECTORS



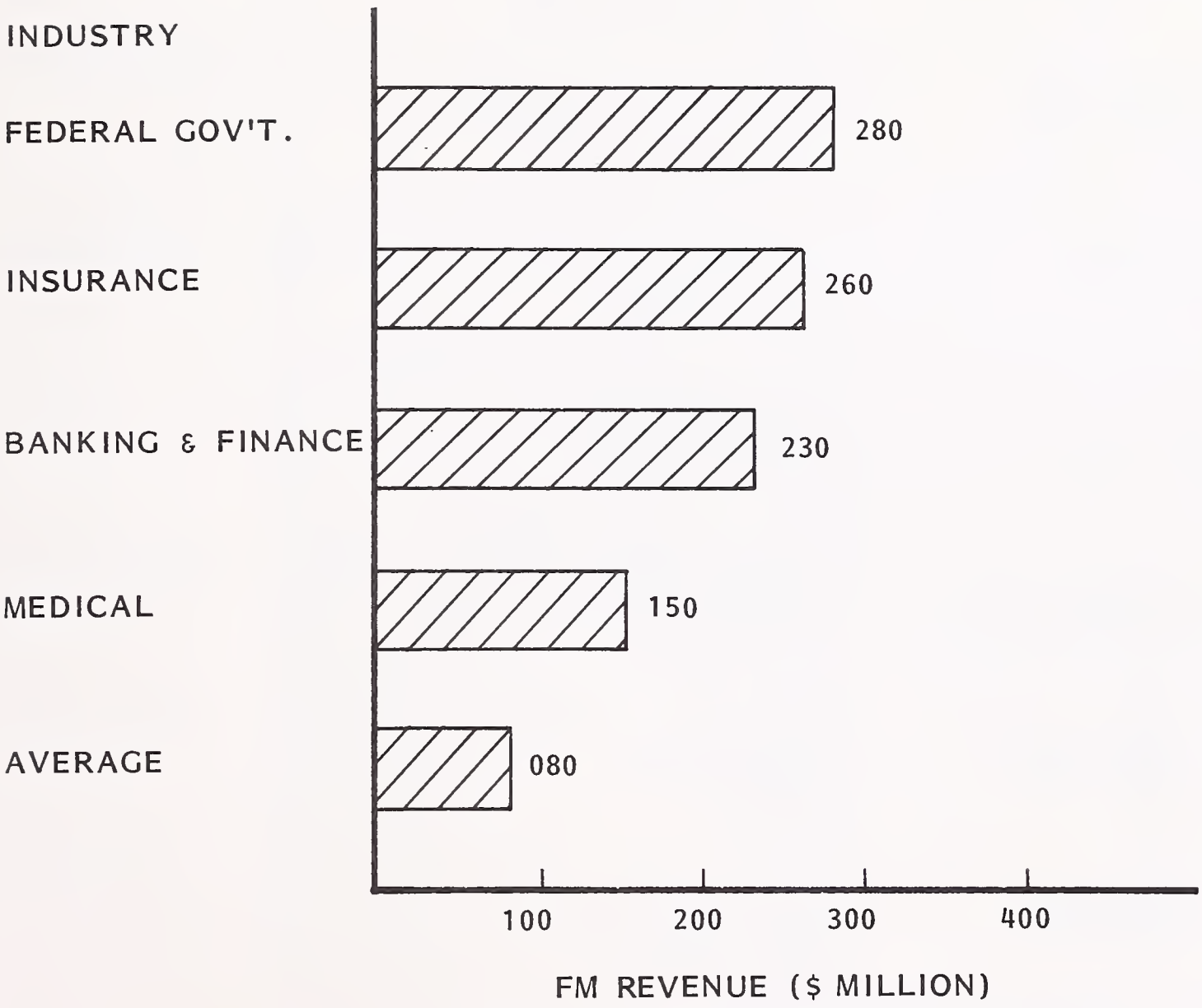
SOURCE: INPUT FORECAST

1979 RCS REVENUE PRODUCTION FOR
TOP INDUSTRY SECTORS



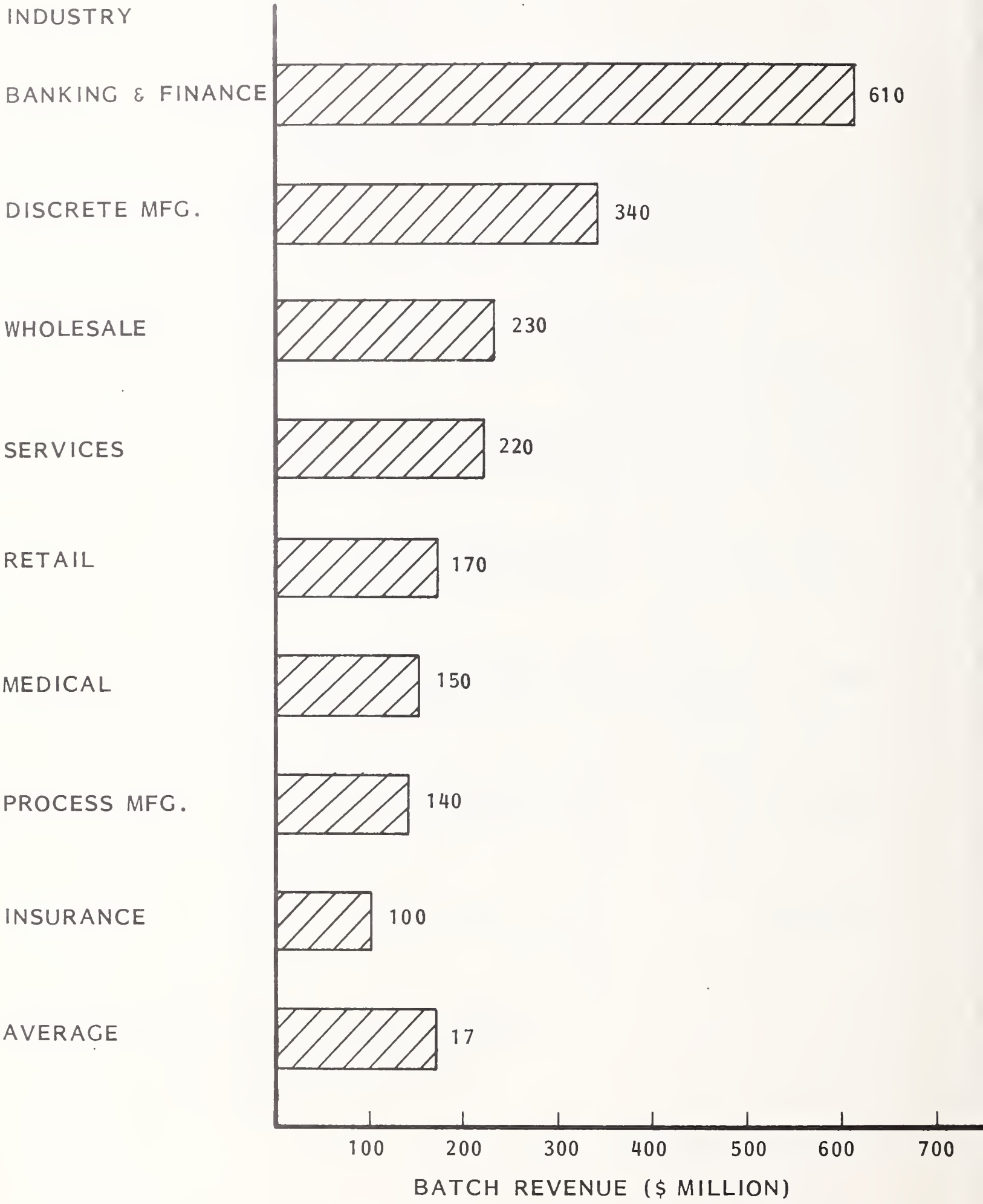
SOURCE: INPUT FORECAST

1979 FM REVENUE PRODUCTION FOR TOP INDUSTRY SECTORS



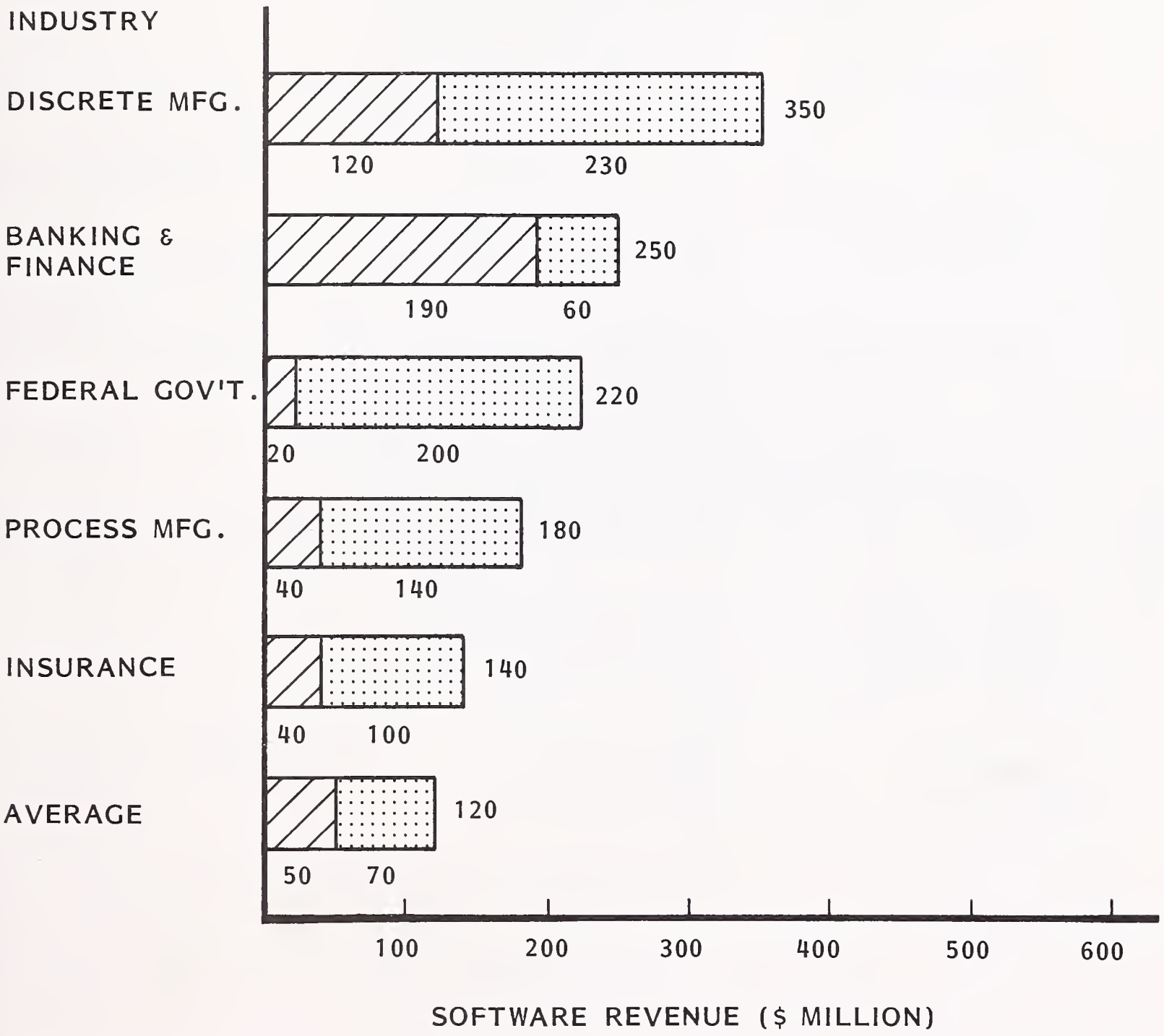
SOURCE: INPUT FORECAST

1979 BATCH REVENUE PRODUCTION FOR TOP INDUSTRY SECTORS



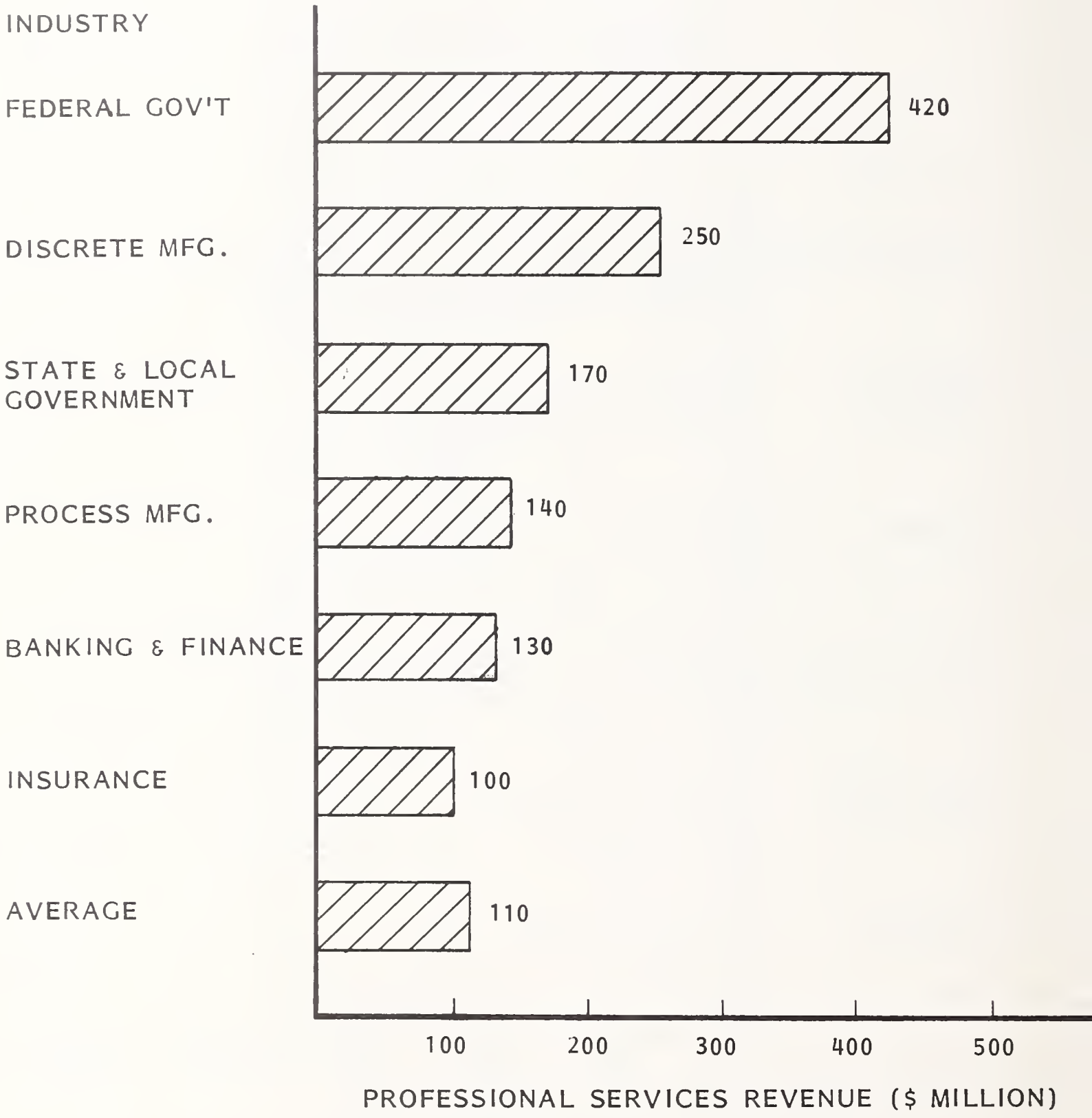
SOURCE: INPUT FORECAST

1979 SOFTWARE PRODUCTS REVENUE PRODUCTION
FOR TOP INDUSTRY SECTORS



SOURCE: INPUT FORECAST

1979 PROFESSIONAL SERVICES REVENUE PRODUCTION FOR TOP INDUSTRY SECTORS



SOURCE: INPUT FORECAST

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INF

INDUSTRIES WITH HIGHEST 1979 EDP BUDGET CATEGORIES

BUDGET CATEGORY	INDUSTRY/BUDGET PERCENT	1979 AVERAGE
PERSONNEL	INSURANCE (51%), PROCESS MFG. (49%), TRANSPORTATION (48%), DISCRETE MANUFACTURING (48%)	47%
MAIN COMPUTERS	WHOLESALE (39%)	29%
SMALL COMPUTERS/ PROGRAMMABLE TERMINALS	RETAIL (4%)	2%
NON-PROGRAMMABLE TERMINALS	TRANSPORTATION (4%)	2%
COMMUNICATIONS	TRANSPORTATION (6%), BANKING & FINANCE (4%), PROCESS MFG (4%)	3%
SOFTWARE	UTILITY (5%), BANKING & FINANCE (5%), INSURANCE (4%), SERVICES (4%),	4%
PROCESSING SERVICES	TRANSPORTATION (4%)	2%

SOURCE: INPUT EDP USER PANEL

BANKING AND FINANCE INDUSTRY

- USER EXPENDITURES WITH GROWTH FROM $1.9B IN 1979 TO $4.0B IN 1984, 16% A YEAR
- FIRMS SPEND A LARGE PERCENT OF EDP BUDGET ON COMPUTER SERVICES
  - 30% IN 1979
  - 36% BY 1984
- COMMERCIAL BANKING ACCOUNTS FOR OVER 60% OF SECTOR REVENUE
- GREATEST GROWTH IN CREDIT UNIONS, 18% AAGR
- MAJOR DELIVERY MODES TODAY ARE RCS AND BATCH, BUT RCS WILL ACCOUNT FOR NEARLY 60% OF EXPENDITURES BY 1984
- APPLICATIONS MARKET GROWTH WILL BE FOSTERED BY NEW PRODUCTS USING DBMS AND OPERATING IN A DDP ENVIRONMENT

COMPUTER SERVICES MARKET FORECAST FOR
BANKING AND FINANCE BY SERVICE MODE
(1978-1984)

COMPUTER SERVICE		USER EXPENDITURES			
MODE	TYPE	1978 ($M)	1979 ($M)	1984 ($M)	AAGR (%)
REMOTE COMPUTING SERVICES	GENERAL BUSINESS	$ 85	$ 105	$ 266	21%
	INDUSTRY SPECIALTY	439	540	1,501	23
	UTILITY	39	44	82	13
	TOTAL	$ 563	$ 689	$ 1,849	22%
FACILITIES MANAGEMENT	GENERAL BUSINESS	-	-	-	-
	INDUSTRY SPECIALTY	197	233	512	17
	UTILITY	-	-	-	-
	TOTAL	$ 197	$ 233	$ 512	17%
BATCH	GENERAL BUSINESS	121	134	206	9
	INDUSTRY SPECIALTY	432	468	656	9
	UTILITY	7	7	13	11
	TOTAL	$ 560	$ 609	$ 875	8%
TOTAL PROCESSING	GENERAL BUSINESS	206	239	472	15
	INDUSTRY SPECIALTY	1,068	1,241	2,669	16
	UTILITY	46	51	95	13
	TOTAL	$ 1,320	$ 1,531	$ 3,236	16%
SOFTWARE PRODUCTS	SYSTEM	55	62	118	14
	APPLICA-TION	161	187	361	14
	TOTAL	$ 216	$ 249	$ 479	14%
PROFESSIONAL SERVICES		108	127	254	15
TOTAL		$ 1,644	$ 1,907	$ 3,969	16%

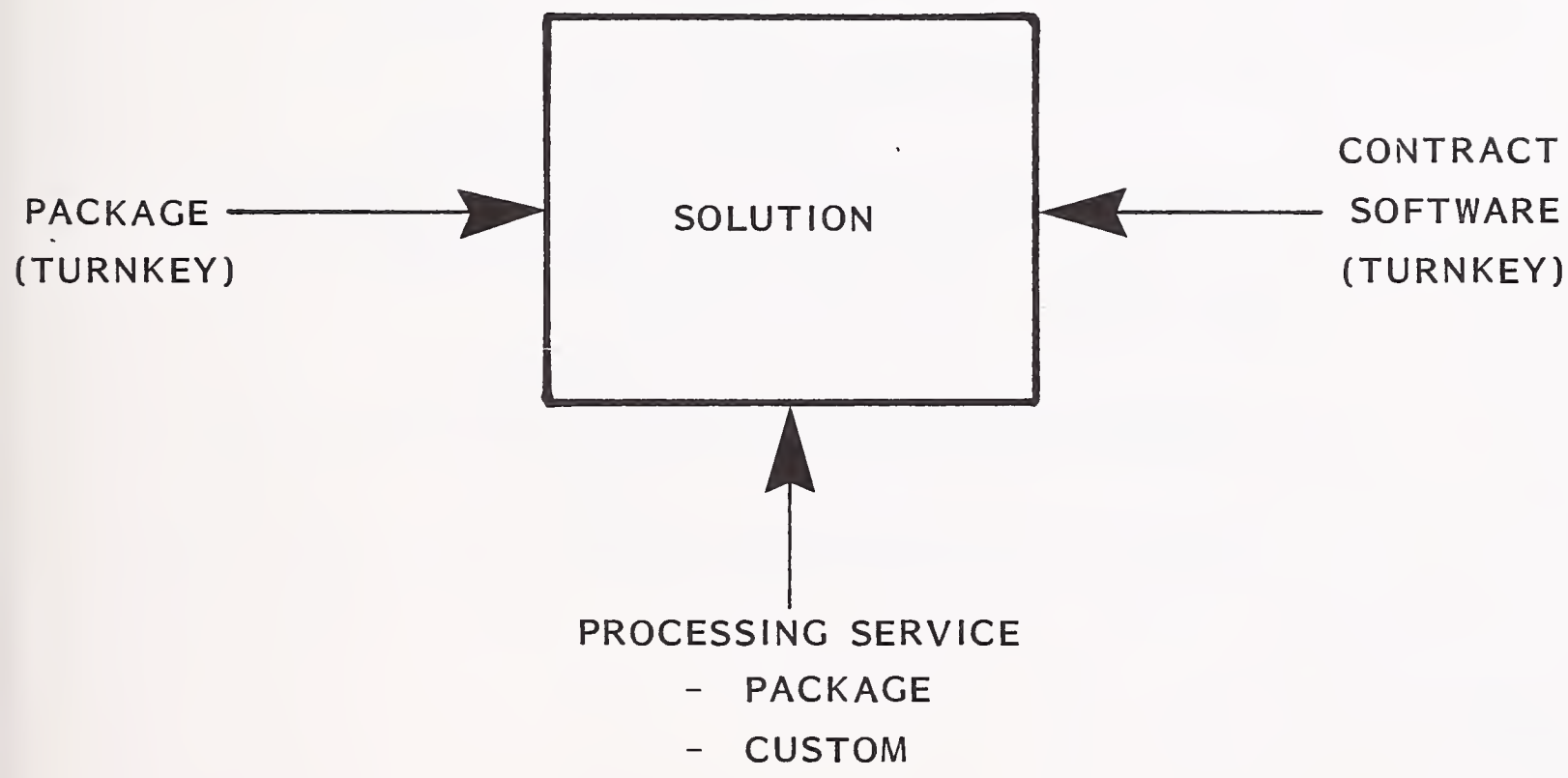
SOURCE: INPUT BANKING AND FINANCE STUDY

COMPUTER SERVICES MARKET FORECAST FOR
BANKING AND FINANCE BY INDUSTRY SUBSECTOR
(1978-1984)

INDUSTRY SUBSECTOR	USER EXPENDITURES			
	1978 ($M)	1979 ($M)	1984 ($M)	AAGR (%)
COMMERCIAL BANKING	$ 1,033	$ 1,210	$ 2,603	17%
SAVINGS AND LOAN	158	182	362	15
CREDIT UNION	77	91	205	18
FINANCE COMPANY	53	59	107	12
SECURITY AND COMMODITY FIRM	225	252	450	12
MORTGAGE BANKING COMPANY	22	25	57	17
OTHER	76	88	185	16
TOTAL	$ 1,644	$ 1,907	$ 3,969	16%

SOURCE: INPUT BANKING AND FINANCE STUDY

COMPETITION AMONG SERVICES VENDORS



TRENDS IN SOFTWARE PRODUCTS

- PRODUCTS MUST SUPPORT INTERACTIVE COMPUTING
- PRODUCTS MUST BE BUILT AROUND DBMS AND RETRIEVAL LANGUAGES
- HIGH LEVEL SOFTWARE MUST BE USED AND PROVIDED FOR DESIGN AND IMPLEMENTATION
- PRODUCTS MUST SUPPORT DISTRIBUTED PROCESSING (80/20 RULE)
  - TURNKEY SOLUTION FOR LOCAL PROCESSING (80%)
  - NETWORK SOLUTION FOR CENTRAL PROCESSING (20%)

SYSTEMS SOFTWARE DEVELOPMENTS

- PROVIDES THE VEHICLE FOR NEW LEVEL APPLICATION DEVELOPMENT
- TIES WORD PROCESSING, COMMUNICATIONS, AND DATA PROCESSING TOGETHER
- KEY TO NEW MULTIFUNCTION EQUIPMENT SYSTEMS IN THE NEAR TERM

DATA BASE MANAGEMENT SYSTEMS (DBMS)

- RELATIONAL DBMS EMERGING
  - IBM DATA DICTIONARY HAS SOME STRUCTURE
  - NEW LARGE SCALE SYSTEMS
  - SYSTEM/38 HAS QBE
  - UNIVAC, TYMSHARE, NCSS AND OTHERS CLAIM TO HAVE ONE
- RELATIONAL DBMS WILL MAKE USER ACCESS EASIER
  - MORE REQUIREMENTS FOR ACCESS
  - TEXT HANDLING WILL BE MAJOR USE
  - NEW MASS STORAGE WILL BE REQUIRED
  - USER APPLICATION IMPLEMENTATION LANGUAGES WILL BE REQUIRED
- DISTRIBUTED DBMS CAPABILITY EMERGING

UNITED STATES SYSTEMS SOFTWARE MARKET SIZE,
MARKET SHARE AND GROWTH RATES

VENDOR TYPE	1978 REVENUES ($000,000)	1978 MARKET SHARE	1983 REVENUES ($000,000)	AAGR*	1983 MARKET SHARE
• HARDWARE MANUFACTURERS	$360	47%	$1,692	36%	54%
IBM	250	33	1,345	40	43
OTHER LARGE AND MEDIUM COMPUTER MANUFACTURERS	50	6	124	20	4
MINICOMPUTER MANUFACTURERS	60	8	223	30	7
• PROCESSING SERVICES COMPANIES	58	8	177	25	6
• INDEPENDENT SYSTEMS SOFTWARE VENDORS	345	45	1,281	30	40
TOTAL	$763	100%	$3,150	33%	100%

*AVERAGE ANNUAL GROWTH RATE
SOURCE: INPUT SYSTEMS SOFTWARE STUDY

IBM IN SYSTEMS SOFTWARE

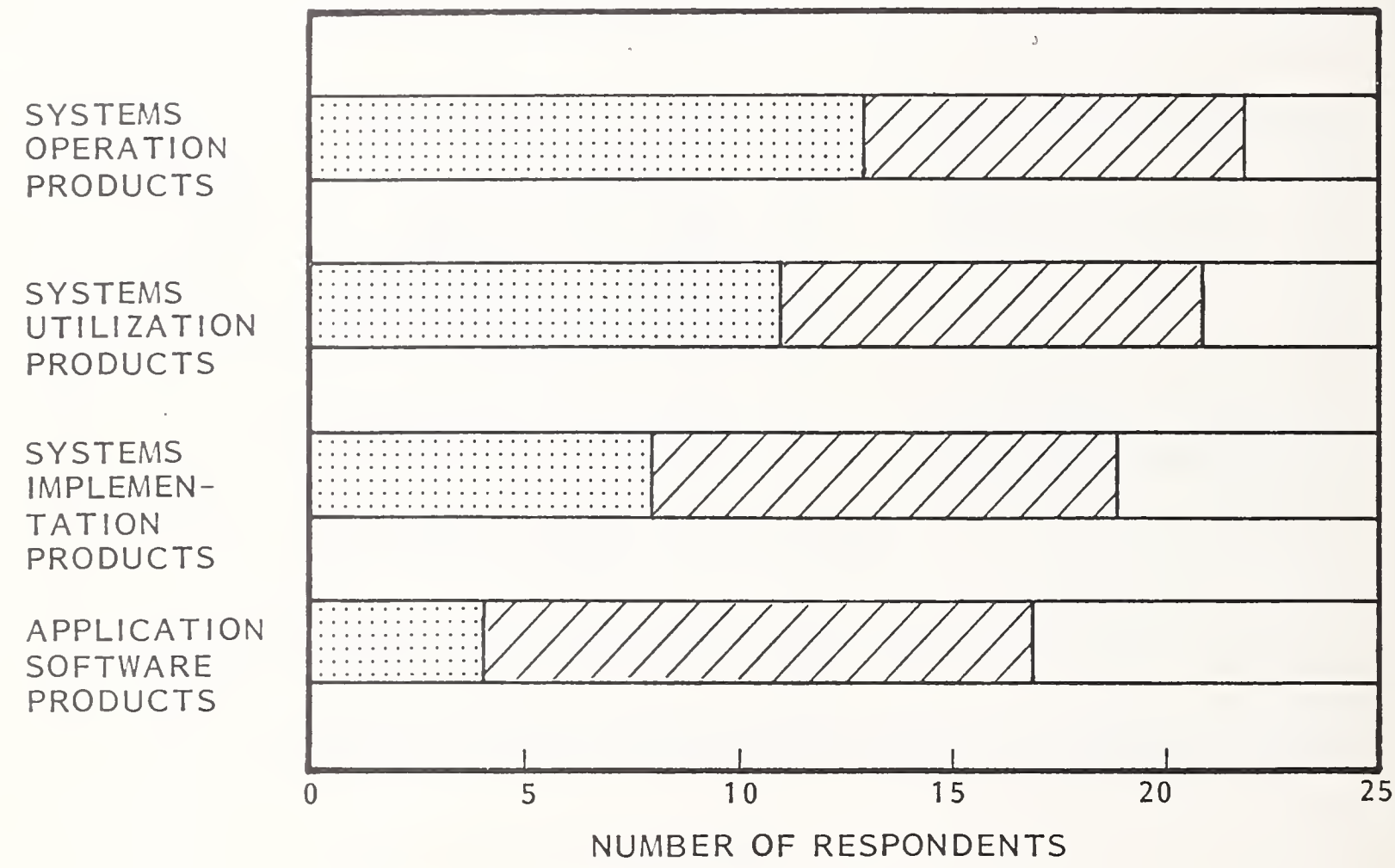
- MAJOR GROWTH AREA
  - CONTROL 33% OF MARKET
  - GROWING 40% PER YEAR
- MORE SYSTEMS TO CHARGE FOR
- CHARGING MORE FOR SYSTEMS
- HIERARCHICAL STRUCTURE
  - SYSTEMS CONTROL PROGRAMS
  - DB/DC
  - APPLICATION ENABLERS
  - APPLICATIONS PACKAGES

MARKET SIZE AND GROWTH FORECAST BY TYPE
OF SYSTEMS SOFTWARE PRODUCT

PRODUCT TYPE	MARKET SIZE		AVERAGE ANNUAL GROWTH RATE 1978-1983
	1978 REVENUE ($ MILLION)	1983 REVENUE ($ MILLION)	
SYSTEMS OPERATIONS	$ 389M	$ 1,637M	33%
SYSTEMS UTILIZATION	84	312	30
IMPLEMENTATION SYSTEMS	290	1,201	33
TOTAL	$ 763M	$ 3,150M	33%

SOURCE: INPUT SYSTEMS SOFTWARE STUDY

RESPONDENTS' ATTITUDES TOWARD SOFTWARE PACKAGES



SOURCE: INPUT SYSTEMS SOFTWARE STUDY

SYSTEMS SOFTWARE COST STRUCTURE

HARDWARE MODEL	TYPICAL SYSTEM HARDWARE PRICE ($000)	SYSTEMS SOFTWARE COST ($000)	SYSTEMS SOFTWARE COST AS A PERCENT OF HARDWARE PRICE
IBM S/38	155	22	14%
IBM 8100(SMALL)	180	49	27
IBM 8100(LARGE)	310	49	16
IBM 4331	230	23	10
IBM 4341	709	57	8
DEC PDP-11/70	242	41	17
HP 3000-III	196	22	11
HONEYWELL L64	498	30	6
AVERAGE	$315	$37	12%

SOURCE: INPUT SYSTEMS SOFTWARE STUDY

MARKET CONDITIONS - SYSTEMS SOFTWARE

- MARKET
  - FRAGMENTED
  - GROWING RAPIDLY
  - "LED" BY IBM
  - CURRENT PRODUCTS OFTEN 'OLD'
  - ENVIRONMENT IS UNDERGOING MAJOR CHANGE
  - HIGH RISK IN DEVELOPMENT
  - PRODUCT SOURCES OFTEN UNIVERSITIES, USERS, 'GARAGE', OR MANUFACTURERS
- COMPANIES
  - SMALL, PRIVATELY HELD
  - "PROFITABLE"
  - LARGE ONES ARE SALES AND DISTRIBUTION OPERATIONS
  - 'SKIMMING' IS COMMON
  - LACK MARKETING CAPABILITY

MARKET CONDITIONS - APPLICATIONS SOFTWARE

- MARKET
  - FRAGMENTED
  - GROWING RAPIDLY
  - SCARCITY OF HIGH QUALITY PACKAGES
  - PRODUCTS UNDERVALUED
  - PACKAGES 'OLDER' STILL
- COMPANIES
  - NOT AS PROFITABLE AS SYSTEMS SOFTWARE
  - PROBLEMS WITH IMPLEMENTATION AND SUPPORT INCLUDING DOCUMENTATION
  - PROBLEMS WITH DEVELOPMENT
  - LACK MARKETING CAPABILITY

TURNKEY SYSTEMS MARKET PROJECTIONS

- DEFINITION OF TURNKEY SYSTEMS
  - HARDWARE AND SOFTWARE INTEGRATED INTO A SYSTEM DESIGNED TO FULFILL THE PROCESSING REQUIREMENTS OF AN APPLICATION (S) FOR A USER
- ALL COMPUTER SYSTEMS MANUFACTURERS AND COMPUTER SERVICES COMPANIES ARE POTENTIALLY TURNKEY VENDORS
- DOUBLE-COUNTING OF HARDWARE AND SOFTWARE MUST BE CONSIDERED

MARKET CONDITIONS - TURNKEY SYSTEMS

- MARKET
  - GROWING VERY RAPIDLY
  - SMALL, FIRST-TIME USERS TARGETS
  - END USERS IN LARGER ORGANIZATIONS TARGETS
  - BASE COMPUTER SIZE EXPANDING DOWNWARD
  - 'APPLICATIONS MACHINES' ARE COMING
  - INDUSTRY/FUNCTION SPECIALIZATION REQUIRED
  - SYSTEMS MUST BE 'USER-FRIENDLY'
- COMPANIES - INDEPENDENTS
  - SMALL AND NUMEROUS
  - 'STRETCHED'
  - RARELY PROFITABLE
  - LACK MARKETING CAPABILITY
- COMPANIES - OTHER
  - MANUFACTURERS ARE BEING FORCED INTO IT
  - SOME PROCESSING SERVICES COMPANIES QUITE SUCCESSFUL

TURNKEY SYSTEM LIFE CYCLE COST

FROM USER PERSPECTIVE

	TURNKEY SYSTEM SUPPLIER		
	HARDWARE MANUFACTURER	RCS FIRM	TURNKEY SYSTEMS VENDOR
HARDWARE	$36K	$ 94K	$44K
SOFTWARE	16	104	18
SERVICES	8	38	11
TOTAL	$60K	$236K	$73K
ANNUAL COST OVER 5 YEARS	$12K	$ 47K	$15K
ANNUAL MAINTENANCE	$ 9K	$ 35K	$11K
TOTAL ANNUAL COST	$21K	$ 82K	$26K

SOURCE: INPUT TURNKEY SYSTEMS STUDY

TURNKEY SYSTEM LIFE CYCLE COST

FROM VENDOR PERSPECTIVE

- TYPICAL SOFTWARE INVESTMENT $400,000
- PRE-TAX INCOME 0 TO 10% OF SALES
- IMPACT OF AMORTIZING SOFTWARE INVESTMENT OVER MORE SALES

INCREASE COPY FACTOR BY	INCREASE PRE-TAX PROFIT MARGIN TO
2	19%
3	22%
4	24%
5	27%

- LONG TERM SUCCESS CAN BE ACHIEVED BY SELLING MORE COPIES

TURNKEY SYSTEMS MARKET PROJECTIONS

	($ BILLION)		(%)
	1979	1984	AAGR
HARDWARE	2.3	3.1	6
SOFTWARE	1.2	12.9	61
SERVICES	0.6	2.8	35
TOTAL	4.1	18.8	35

SOURCE: INPUT TURNKEY SYSTEMS STUDY

REPRESENTATIVE VERTICAL MARKETS ADDRESSED BY TURNKEY VENDORS

ACCOUNTANTS

- CLIENT WRITE-UP

ADVERTISING

- RESEARCH AND FORECASTING
- MEDIA PLANNING
- CLIENT SALES AND BILLING

AUTOMOBILE AFTER MARKET

- INVENTORY CONTROL
- INVENTORY MANAGEMENT

AUTOMBILE DEALERS

- PARTS INVENTORY
- PARTS INVOICING
- VEHICLE INVENTORY
- SERVICE MERCHANDISING
- LEASE MANAGEMENT
- FINANCE & INSURANCE

EDUCATION

- ELEMENTARY SCHOOLS
- SECONDARY SCHOOLS
- COLLEGES

LEISURE TIME

- HOTEL RESERVATIONS
- ACCOUNTING
- GUEST ACCOUNTING
- CLUB MANAGEMENT

MEDICAL

- MEDICAL BILLING
- HOSPITAL BILLING
- RADIOLOGY BILLING
- PATIENT ADMINISTRATION
- ACUTE CARE SYSTEM

MUNICIPALITIES

- PUBLIC UTILITY BILLING
- PURCHASE ORDER

PETROLEUM

- FUEL DISTRIBUTION SYSTEM

REAL ESTATE

- ESCROW SYSTEM
- PROPERTY MANAGEMENT

PERSONNEL TRAINING

- U.S. MARKET FOR COMMERCIAL EDUCATION AND TRAINING SERVICES

	1979
INTERNAL TRAINING	$ 9.3B
EXTERNAL TRAINING	$ 2.8B
TOTAL	$12.1B

- EXCLUDES PRIMARY, SECONDARY, AND COLLEGE EDUCATION

- COMPUTER ASSISTED MARKET POTENTIAL

1979	1984	AAGR
$0.1-0.6B	$3.4-4.5B	61%

SOURCE: INPUT EDUCATION SERVICES STUDY

EDP EDUCATION AND TRAINING SERVICES
MARKET FORECAST

TYPE OF TRAINING	1979	1984	AAGR
EDP USER			
EXTERNAL	$ 237M	$ 620M	-
TOTAL	$ 535M	$1,400M	21%
END USER			
EXTERNAL	$ 405M	$ 960M	-
TOTAL	$ 913M	$2,200M	19%
COMBINED			
EXTERNAL	$ 642M	$1,580M	-
TOTAL	$1,448M	$3,600M	20%

SOURCE: INPUT EDUCATION SERVICES STUDY

USER TRAINING EXPENDITURES

	AVERAGE EXPENDITURE PER EDP EMPLOYEE
INTERNAL MANAGEMENT TRAINING	$ 76
EXTERNAL MANAGEMENT TRAINING	$ 70
TOTAL MANAGEMENT TRAINING	$146
INTERNAL TECHNICAL TRAINING	$254
EXTERNAL TECHNICAL TRAINING	$193
TOTAL TECHNICAL TRAINING	$447
TOTAL TRAINING	$593

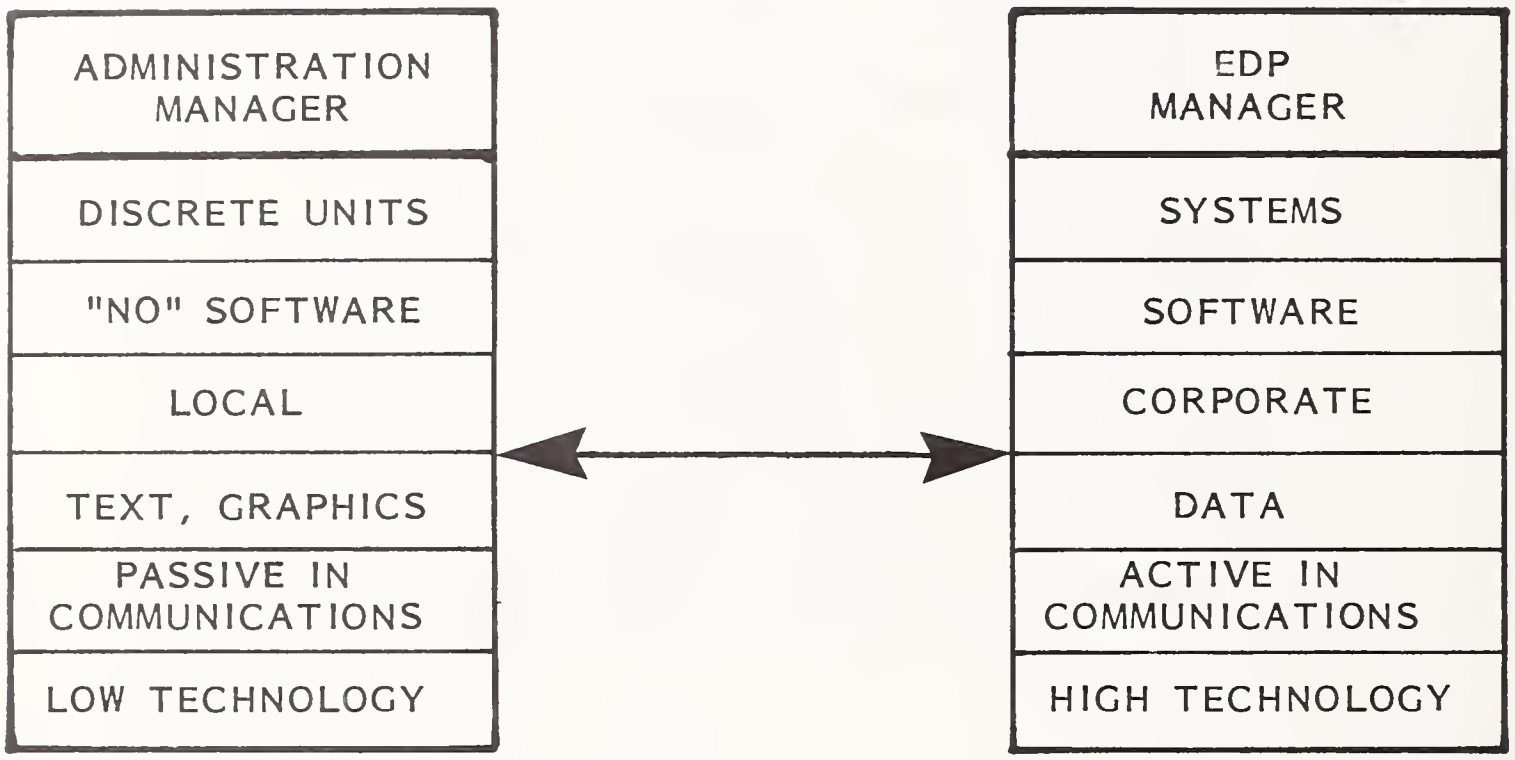
SOURCE: INPUT EDP USER PANEL

THE ROLE OF REMOTE COMPUTING SERVICES COMPANIES

IN THE OFFICE OF THE FUTURE

- PRESENTLY SMALL
  - BOWNE TIMESHARING A LEADER
- ECONOMICS UNFAVORABLE BUT CHANGING
  - OFFICE COSTS INCREASING
  - HARDWARE, COMMUNICATIONS DECLINING
- SOFTWARE, PARTICULARLY DBMS, IS KEY

OFFICE OF THE FUTURE



A KEY QUESTION - MARKETING

THE RCS COMPANY OFTEN CALLS ON NEITHER

ON-LINE DATA BASES AVAILABLE AT THE

NATIONAL BUREAU OF STANDARDS

LIBRARY

DATA BASE CONTENTS	NUMBER OF DATA BASES AVAILABLE
BUSINESS, ECONOMICS, MANAGEMENT	37
INFORMATION SCIENCE	12
ENGINEERING (BY TYPE)	5-39
TRANSPORTATION & UTILITIES	11
ENVIRONMENT	26
MEDICINE	25
PATENTS	16
TOXICOLOGY	8
HOME ECONOMICS	4
TOTAL	119

INTERNATIONAL MARKETS

EUROPEAN COMPUTER SERVICES MARKETS

	($ MILLION)		(%)
	1978	1982	AAGR 82/78*
FRANCE	1,266	2,619	20
GERMANY	936	1,586	14
UNITED KINGDOM	706	1,465	20
ITALY	550	1,021	17
SWEDEN	495	962	18
NETHERLANDS	319	611	18
DENMARK	264	516	18
BELGIUM	207	439	21
OTHER	705	1,439	20
WESTERN EUROPE	$5,448	$10,658	18%

* CONSTANT DOLLARS

SOURCE: INPUT EUROPE COMPUTER SERVICES STUDY

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U.S. COMPUTER SERVICES COMPANIES

INTERNATIONAL PERFORMANCE

	PERCENT OF REVENUES FROM OUTSIDE U.S.
PROCESSING	15%
SOFTWARE	25%
PROFESSIONAL SERVICES	12%

SOURCE: ADAPSO DATA

COMPUTER SERVICES COMPANIES

INTERNATIONAL PERFORMANCE

	PRE-TAX PROFIT MARGINS	
	COMPANIES ONLY OPERATING IN US	COMPANIES OPERATING IN MULTIPLE COUNTRIES
PROCESSING	7%	14%
SOFTWARE	10%	10%
PROFESSIONAL SERVICES	4%	7%

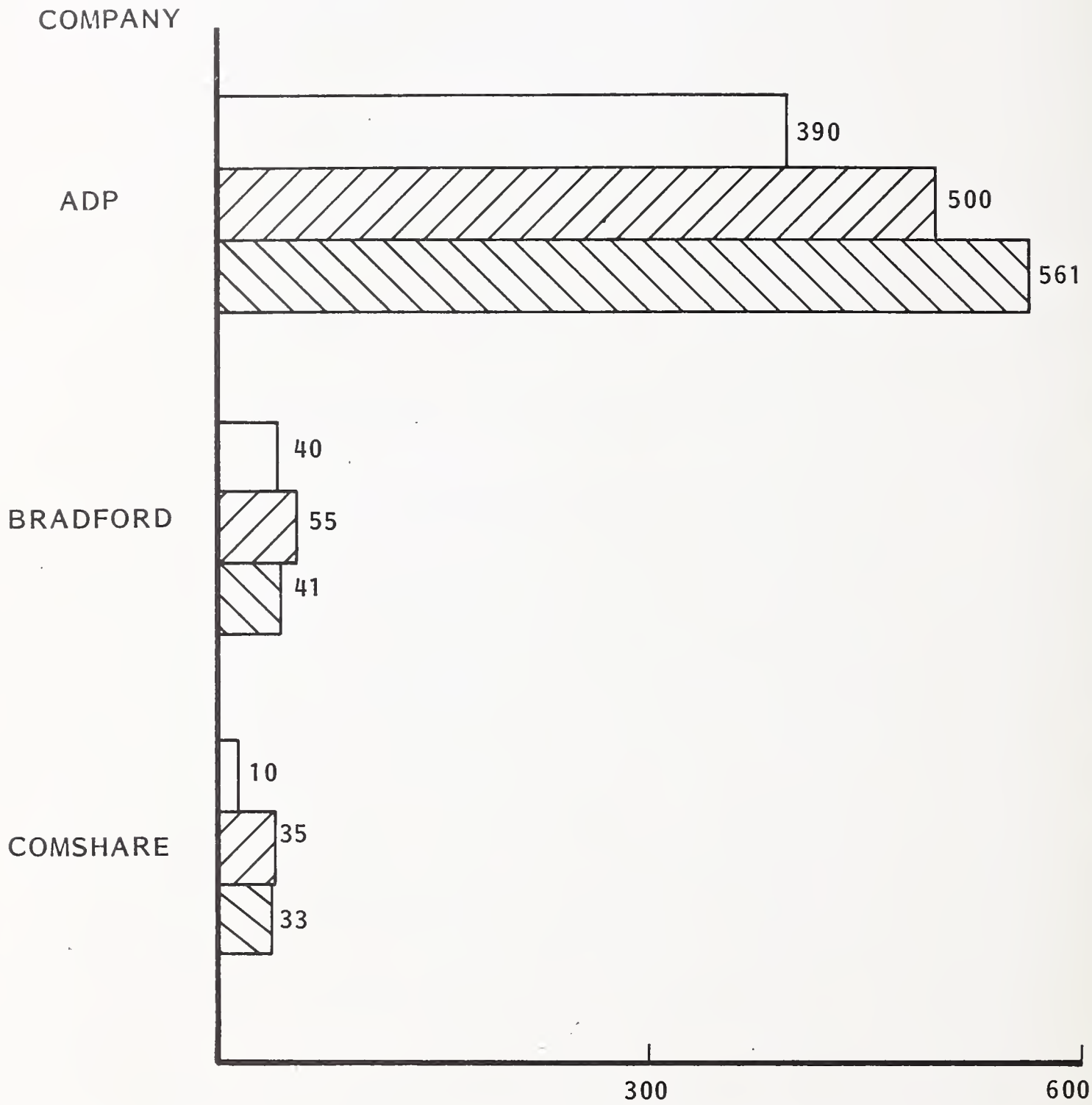
SOURCE: ADAPSO DATA

IV. COMPETITION

IV. COMPETITION

- TYPES AND SIZES OF COMPANIES
- KEY VENDOR PERFORMANCE
- ACQUISITION ACTIVITIES
- NEW ACTIVITIES

PUBLIC COMPUTER SERVICES COMPANIES
MARKET VALUE



SOURCE: ANNUAL REPORTS AND LISTED STOCK PRICES

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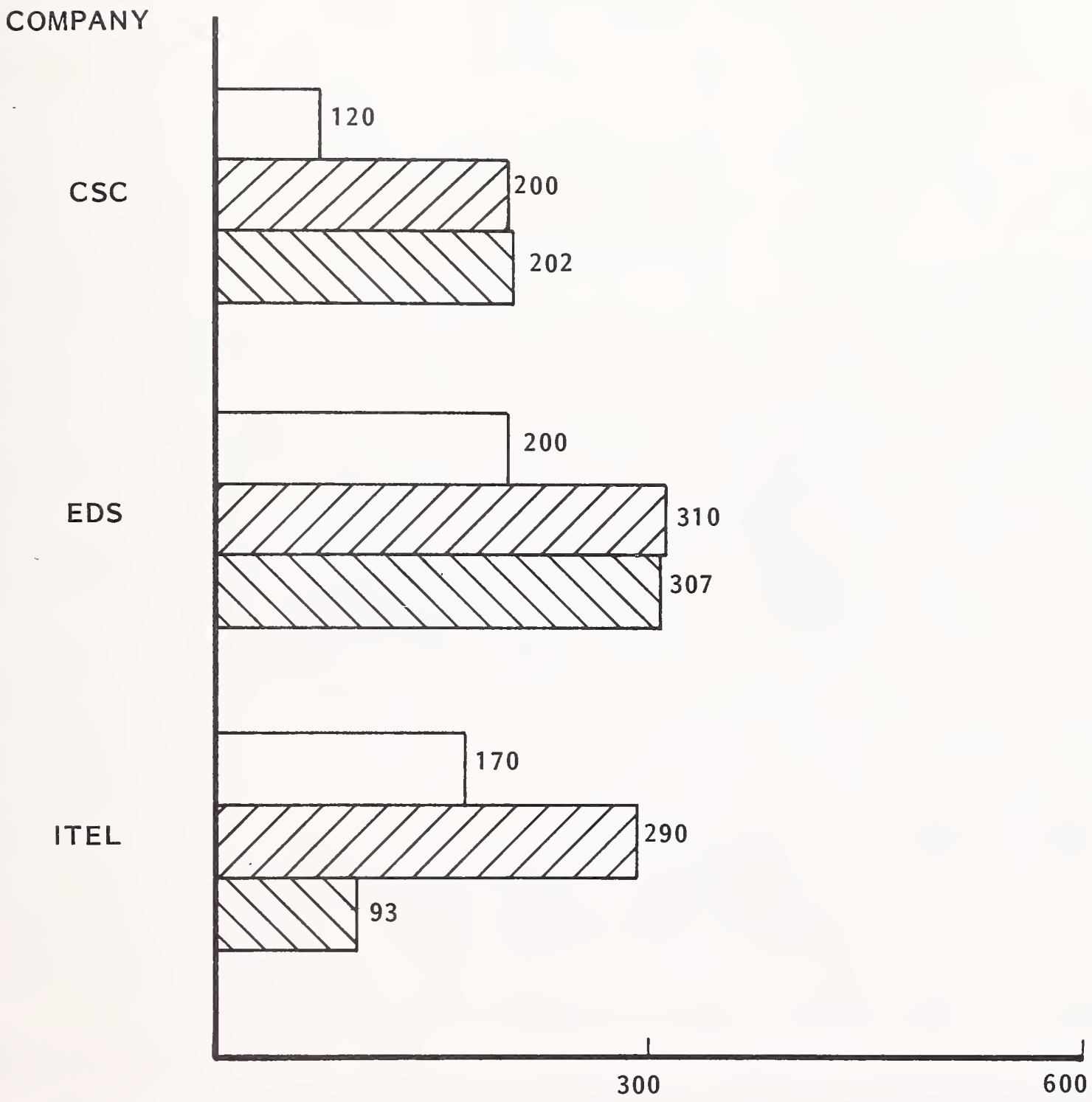
PUBLIC COMPUTER SERVICES COMPANIES

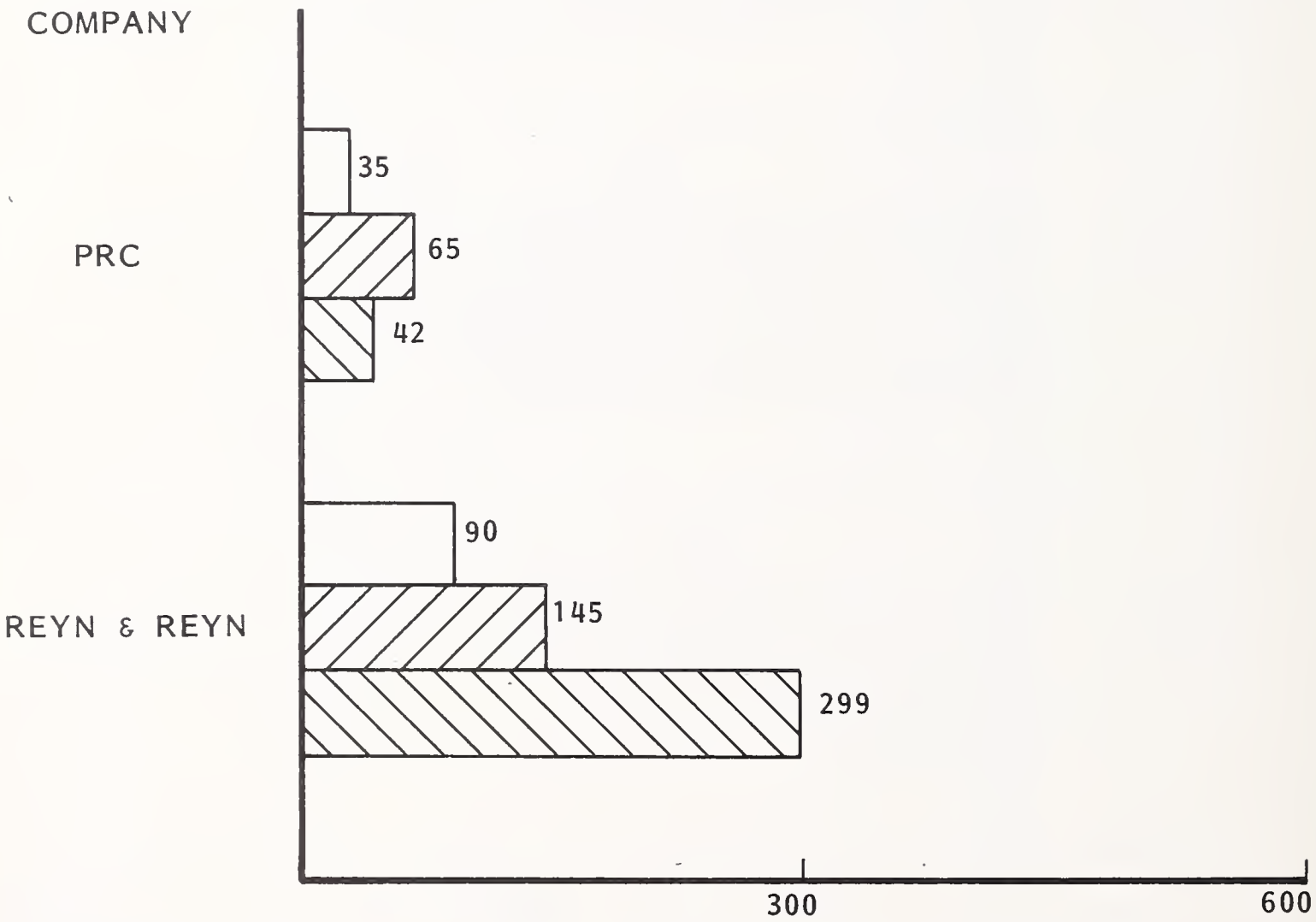
MARKET VALUE



SOURCE: ANNUAL REPORTS AND LISTED STOCK PRICES

PUBLIC COMPUTER SERVICES COMPANIES

MARKET VALUE



SOURCE: ANNUAL REPORTS AND LISTED STOCK PRICES

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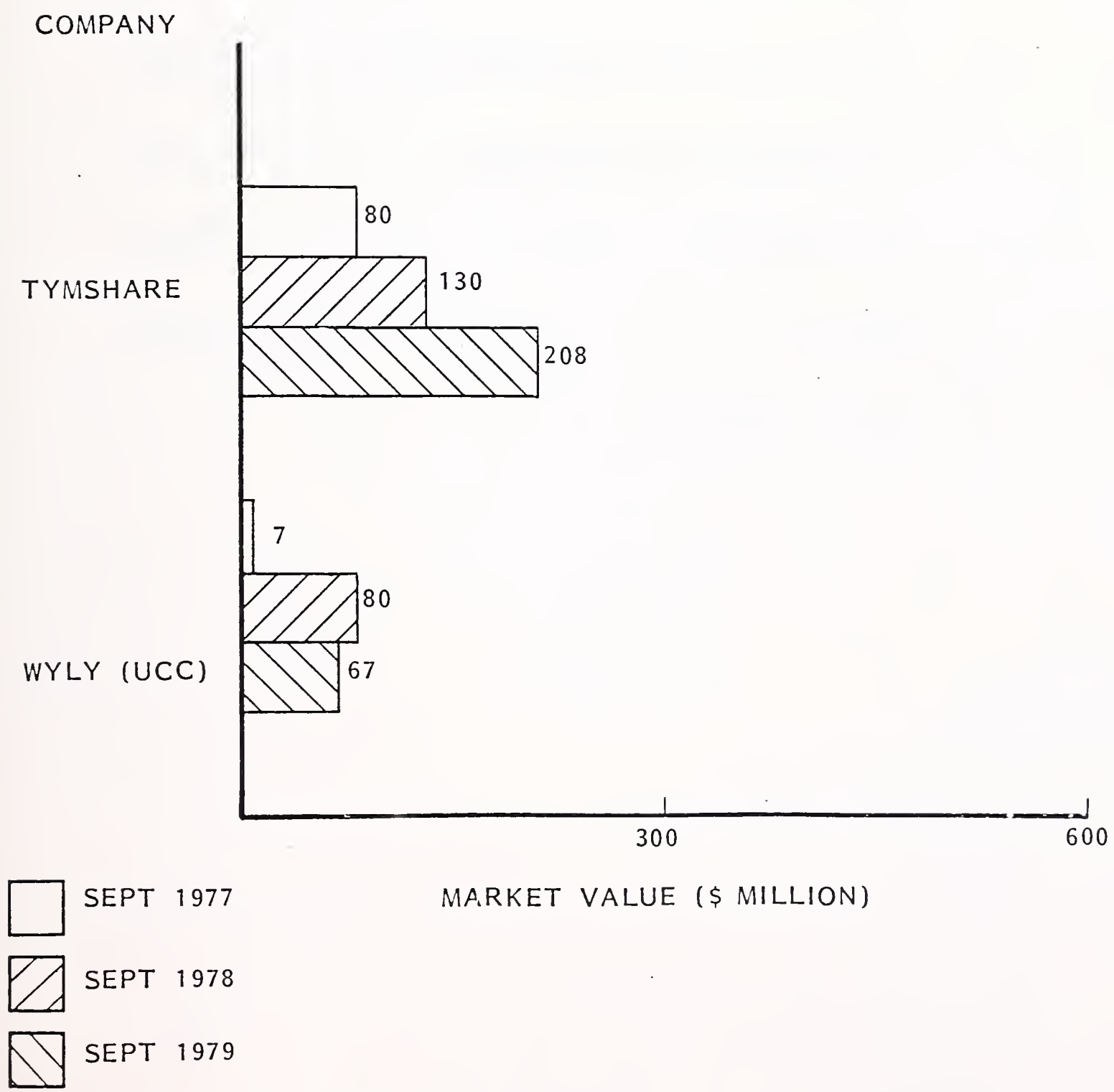
PUBLIC COMPUTER SERVICES COMPANIES

MARKET VALUE



SOURCE: ANNUAL REPORTS AND LISTED STOCK PRICES

PROCESSING SERVICES PROFITABILITY

COMPANY SIZE	PRE-TAX PROFIT MARGINS (PERCENT)
< $2 MILLION	11
$2 MILLION TO $10 MILLION	13
$ 10 MILLION TO $25 MILLION	11
> $25 MILLION	14
TOTAL	13

SOURCE: ADAPSO DATA

SOFTWARE PRODUCTS PROFITABILITY

COMPANY SIZE	PRE-TAX PROFIT MARGINS (PERCENT)
<$2 MILLION	16
$2MILLION TO $10 MILLION	11
>$10 MILLION	10
TOTAL	11

SOURCE: ADAPSO DATA

SOFTWARE PRODUCT PROFITABILITY

	PRE-TAX PROFIT MARGINS (PERCENT)
• SOFTWARE PRODUCT CATEGORY	
– APPLICATION PRODUCTS	
• CROSS INDUSTRY	7.6
• INDUSTRY SECTOR	7.5
• AVERAGE APPLICATIONS PRODUCTS	7.4
• SYSTEM PRODUCTS	
– SYSTEM OPERATION	14.9
– SYSTEM UTILIZATION	19.4
– IMPLEMENTATION SYSTEM	9.7
– AVERAGE SYSTEM PRODUCTS	13.4

SOURCE: ADAPSO DATA

PROFESSIONAL SERVICES PROFITABILITY

COMPANY SIZE	PRE-TAX PROFIT MARGINS (PERCENT)
<$2 MILLION	5
$2 MILLION TO $10 MILLION	10
>$10 MILLION	6
TOTAL	6

SOURCE: ADAPSO DATA

MAJOR COMPUTER SERVICES PROCESSING COMPANIES

VENDOR	INPUT ESTIMATED U.S. 1978 REVENUE ($ MILLION)	MARKET SHARE (PERCENT)
AUTOMATIC DATA PROCESSING	$ 290	4
CONTROL DATA CORP	250	4
ELECTRONIC DATA SYSTEMS	210	3
GENERAL ELECTRIC INFORMATION SERVICES	140	2
TYMSHARE	130	2
BUNKER RAMO CORP	120	2
MCDONNELL DOUGLAS AUTOMATION	110	2
NCR	110	2
BRADFORD	100	2
ITEL DATA SERVICES	85	1
COMPUTER SCIENCES CORP	85	1
UNITED COMPUTING SYSTEMS	70	1
BOEING COMPUTER SERVICES	65	1
NATIONAL CSS	60	1
TRW ELECTRONICS	60	1
SHARED MEDICAL SYSTEMS	60	1
REYNOLDS & REYNOLDS	45	1
XEROX COMPUTER SERVICES	45	1
STATISTICAL TABULATING CORP	40	1
QUOTRON	40	1
FIRST DATA RESOURCES	40	1
INFORMATICS	35	1
NATIONAL DATA CORP	35	1
OPTIMUM SYSTEMS	30	1
GRUMMAN DATA SYSTEMS	30	1
DATA RESOURCES	30	1
NATIONAL SHAREDATA CORP	30	1
MARTIN MARIETTA DATA SYSTEMS	25	<1
COMSHARE	25	<1
PLANNING RESEARCH CORP	20	<1
UNIVERSITY COMPUTING CORP	20	<1
COMPUTER NETWORK CORP	20	<1
TOTAL	$2,455M	43%

MAJOR INDEPENDENT SYSTEMS SOFTWARE VENDORS

VENDOR	INPUT ESTIMATED U.S. 1978 REVENUE ($ MILLION)	MARKET SHARE (PERCENT)
SDI	$ 18	2%
CINCOM SYSTEMS INC.	15	2
APPLIED DATA RESEARCH	13	2
INFORMATICS, INC.	12	2
MRI SYSTEMS	10	1
PANSOPHIC SYSTEMS INC.	9	1
UNIVERSITY COMPUTING CORP.	8	1
BOOLE & BABBAGE	8	1
CULLINANE CORP.	7	1
SOFTWARE AG OF NORTH AMERICA	6	1
WESTINGHOUSE	6	1
TOTAL	$ 112M	15%

SOURCE: INPUT ESTIMATES

MAJOR INDEPENDENT APPLICATIONS SOFTWARE VENDORS

VENDOR	INPUT ESTIMATED U.S. 1978 REVENUE ($ MILLION)	MARKET SHARE (PERCENT)
MANAGEMENT SCIENCE AMERICA	$ 24	5
SOFTWARE INTERNATIONAL	11	2
INFORMATICS	11	2
ANACOMP	10	2
INSURANCE SYSTEMS OF AMERICA	9	2
INFORMATION SCIENCES	9	2
MARTIN MARIETTA DATA SYSTEMS	9	2
MCAUTO	8	2
INSCI	8	2
AMERICAN DATA SERVICES	7	1
ARTHUR ANDERSEN	6	1
FLORIDA SOFTWARE	6	1
UNIVERSITY COMPUTING CORP.	6	1
INSCO SYSTEMS	5	1
INFONATIONAL, INC.	5	1
KRANZLEY AND COMPANY	4	1
UNITED COMPUTING SYSTEMS	4	1
TOTAL	$14 M	28%

SOURCE: INPUT ESTIMATES

MAJOR PROFESSIONAL SERVICES VENDORS

VENDOR	INPUT ESTIMATED U.S. 1978 REVENUE ($ MILLION)	MARKET SHARE (PERCENT)
COMPUTER SCIENCES CORP.	$215	16%
SYSTEM DEVELOPMENT CORP.	145	11
CONTROL DATA CORP.	70	5
ELECTRONIC DATA SYSTEMS	60	4
PLANNING RESEARCH CORP.	60	4
SYSTEMS CONSULTANTS INC.	40	3
INFORMATICS, INC.	30	2
AMERICAN MANAGEMENT SYSTEMS	20	1
BOEING COMPUTER SERVICES	15	1
BRADFORD NATIONAL GROUP	15	1
WINGATE ASSOCIATES	15	1
RAND INFORMATION SYSTEMS	10	1
MCAUTO	10	1
KEANE ASSOCIATES	9	1
COMPUTER TASK GROUP	8	1
ITEL	7	1
AGS COMPUTERS	7	1
MONCHIK-WEBER ASSOCIATES, ICN.	6	<1
SOFTECH, INC.	5	<1
CGA COMPUTER ASSOCIATES	5	<1
TOTAL	$752M	56%

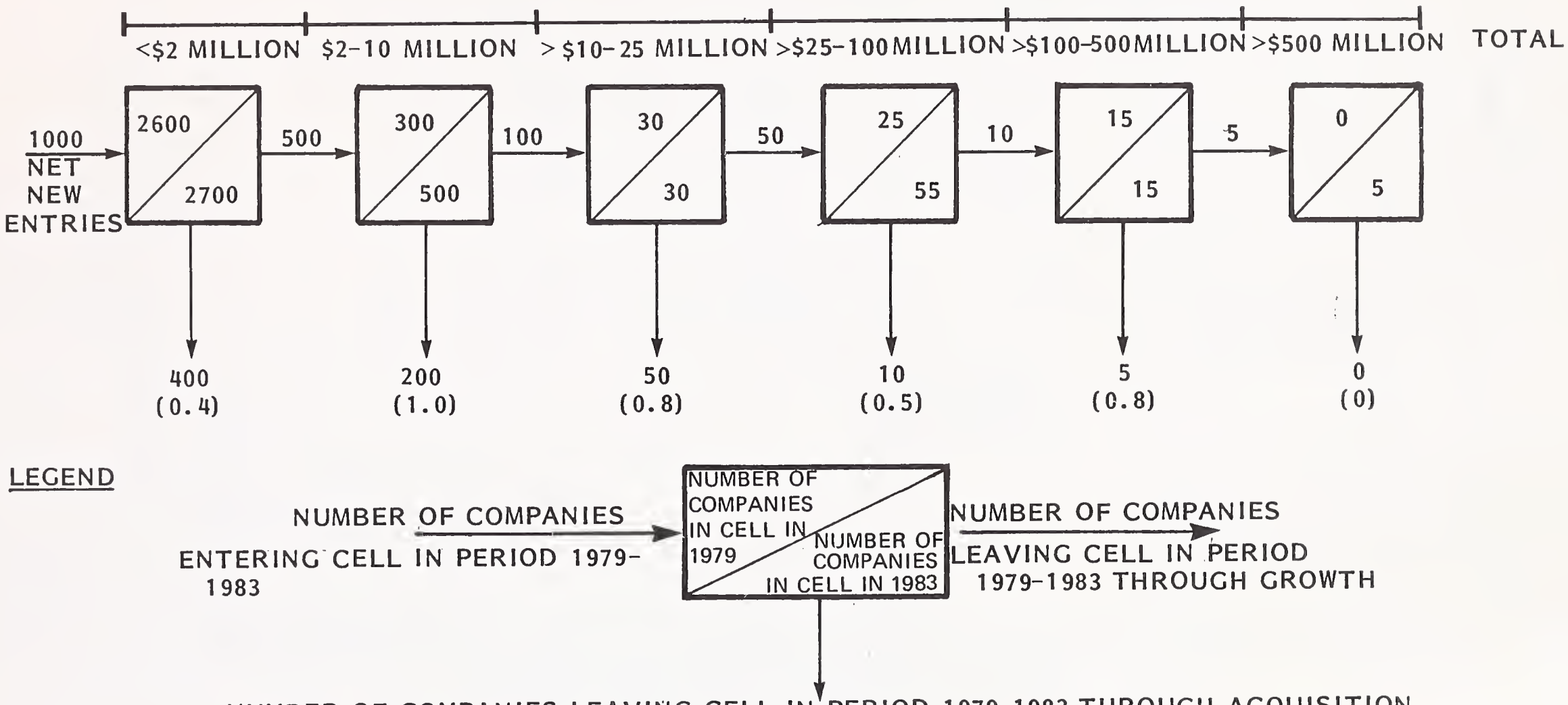
SOURCE: INPUT ESTIMATES

ACQUISITION TRENDS

- AVERAGE ACQUISITION WILL INCREASE FROM $2 TO 3M IN 1979 TO $6M BY 1983
- MAJOR COMPANY ACQUIRORS WILL INCREASE FROM 20 NOW TO 30 BY 1983
- 25% GROWTH TARGET FROM INTERNAL GROWTH AND ACQUISITION IS KEY TO RETAINING MARKET SHARE
- ACQUISITION PRICES VARY CONSIDERABLY
  - 8 TO 15 TIMES EARNINGS IS STANDARD, BUT UP TO 25 TIMES EARNINGS HAS HAPPENED
  - UP TO 2 TIMES REVENUE

IMPACT OF GROWTH AND ACQUISITIONS ON THE STRUCTURE OF THE COMPUTER SERVICES INDUSTRY, 1979-1983

NUMBER COMPANIES BY ANNUAL U.S. COMPUTER SERVICES REVENUES IN $ MILLIONS

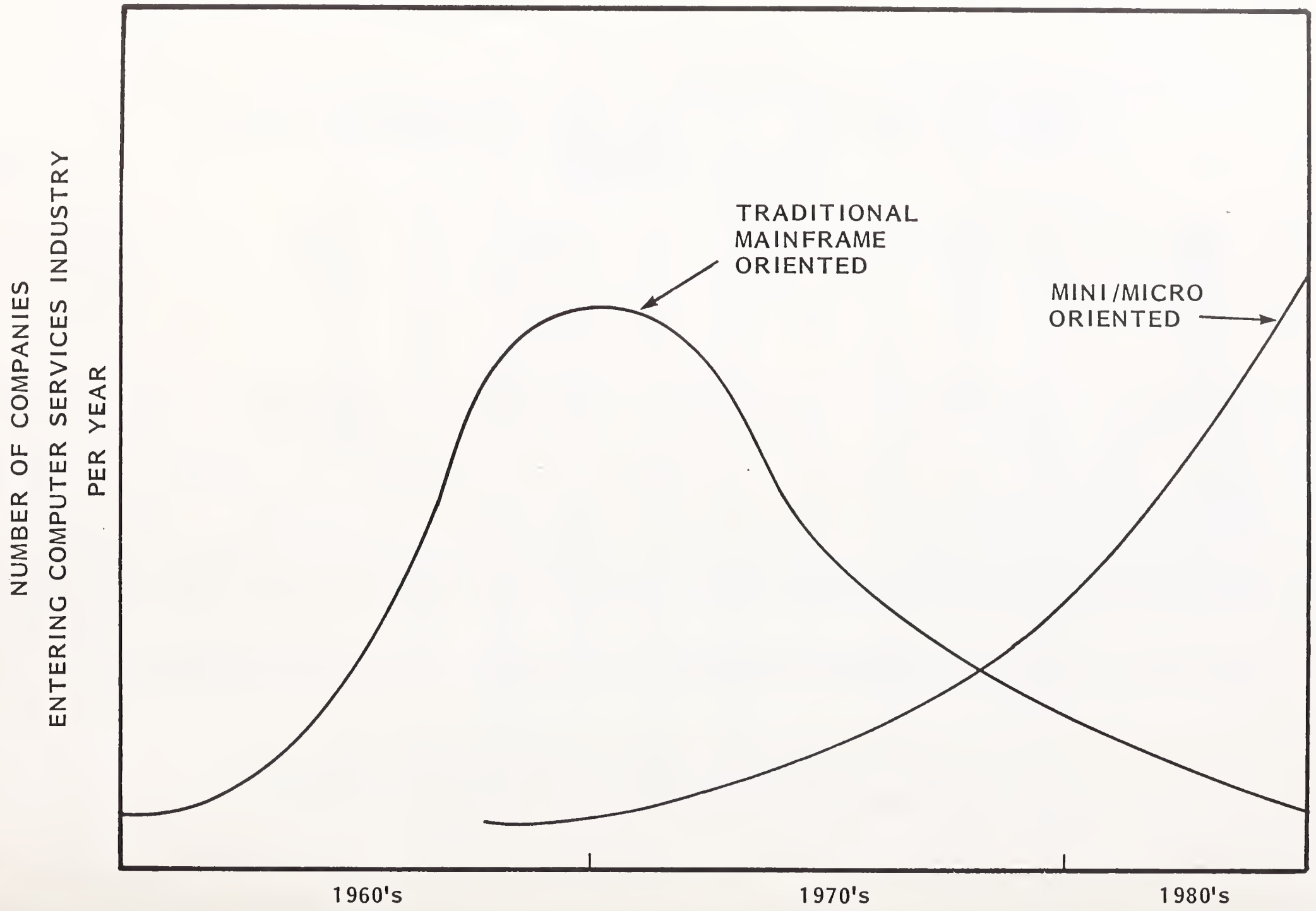


LEGEND

NUMBER OF COMPANIES ENTERING CELL IN PERIOD 1979-1983
NUMBER OF COMPANIES IN CELL IN 1979 / NUMBER OF COMPANIES IN CELL IN 1983
NUMBER OF COMPANIES LEAVING CELL IN PERIOD 1979-1983 THROUGH GROWTH

NUMBER OF COMPANIES LEAVING CELL IN PERIOD 1979-1983 THROUGH ACQUISITION
(AGGREGATE ANNUAL REVENUES OF THESE COMPANIES IN THEIR YEAR OF ACQUISITION IN $ BILLIONS)

COMPUTER SERVICES COMPANY FORMATION TRENDS



1979 NEW PRODUCT ANNOUNCEMENTS

- BANKING AND FINANCE, MEDICAL AND WHOLESALE INDUSTRIES HAD LARGEST NUMBER OF NEW PRODUCTS/SERVICES ANNOUNCEMENTS

- MEDICAL INDUSTRY HAD LARGEST NUMBER OF NEW TURNKEY SYSTEM ANNOUNCEMENTS

- BANKING AND FINANCE AND WHOLESALE INDUSTRIES HAD GREATEST NUMBER OF NEW SOFTWARE PRODUCT ANNOUNCEMENTS

- BANKING AND FINANCE INDUSTRY HAD GREATEST NUMBER OF NEW SERVICES ANNOUNCEMENTS

- NEW PRODUCT ANNOUNCEMENT BREAKDOWN

- TURNKEY SYSTEM	28%
- SOFTWARE PRODUCTS	45%
- REMOTE COMPUTING SERVICES	25%
- BATCH SERVICES	2%
	100%

CROSS INDUSTRY

SIGNIFICANT PRODUCT ANNOUNCEMENTS

IN 1979

- ITEL, MAESTRO, SOFTWARE DEVELOPMENT SYSTEM
- RAPIDATA, MARKET PLANNING INFORMATION SOFTWARE PRODUCT
- SOFTWARE INTERNATIONAL, ACCOUNTING BUSINESS SOFTWARE SYSTEM - IBM AND HEWLETT-PACKARD HARDWARE
- INFO 2000, TEXT 2000, TURNKEY WORK AND TEXT PROCESSING SYSTEM
- COMPUTER CORPORATION OF AMERICA, WORD PROCESSING AND ELECTRONIC MAIL SERVICE AND TURNKEY SYSTEM - DEC HARDWARE
- SOFTWARE AG, SOFTWARE MAINTENANCE AVAILABLE ON A DIAL-UP BASIS
- NORTHERN NUMBERS, DATA MANAGEMENT SOFTWARE SYSTEM THAT BUILDS ON-LINE INTERACTIVE FILE MAINTENANCE SYSTEMS - NCR HARDWARE
- SUN INFORMATION SERVICES
  - PROJECT SCHEDULING AND MANAGEMENT SOFTWARE PRODUCT
  - PROJECT COSTING AND FORECASTING SOFTWARE PRODUCT

V. STRATEGIC IMPLICATIONS

V. STRATEGIC IMPLICATIONS

- IMPACT OF DECREASING HARDWARE COST
- IMPACT OF THE ECONOMY
- COPING WITH PERSONNEL SHORTAGES
- SELLING IN A SHIFTING MARKET
- MARKET SEGMENTATION AND PRODUCT POINTS OF DIFFERENCE
- PUTTING IT ALL TOGETHER

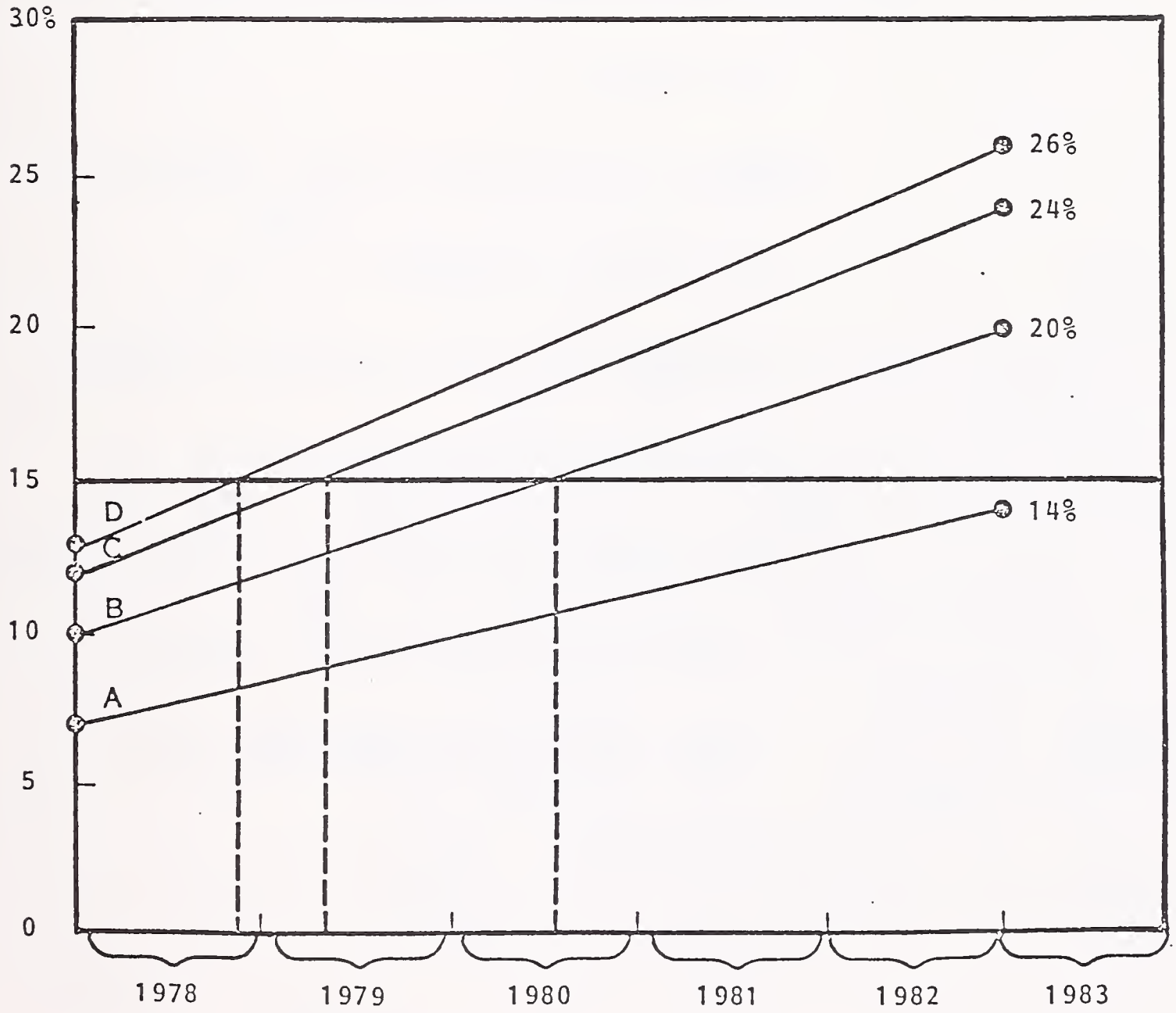
IMPACT OF DECREASING HARDWARE COST

- DECREASING HARDWARE PRICE
  - 10% TO 20% PER YEAR FOR EQUIVALENT PERFORMANCE
- INCREASING SOFTWARE COMPONENT OF SYSTEM PRICE

IBM MODEL	SYSTEMS SOFTWARE COST AS A PERCENT OF HARDWARE PRICE
S/3-15	2%
S/34	6%
S/38	14%

- INCREASING FIELD SERVICES COMPONENT OF SYSTEM PRICE

FORECASTED GROWTH OF ANNUAL MAINTENANCE
CHARGES FROM VENDOR PROJECTIONS



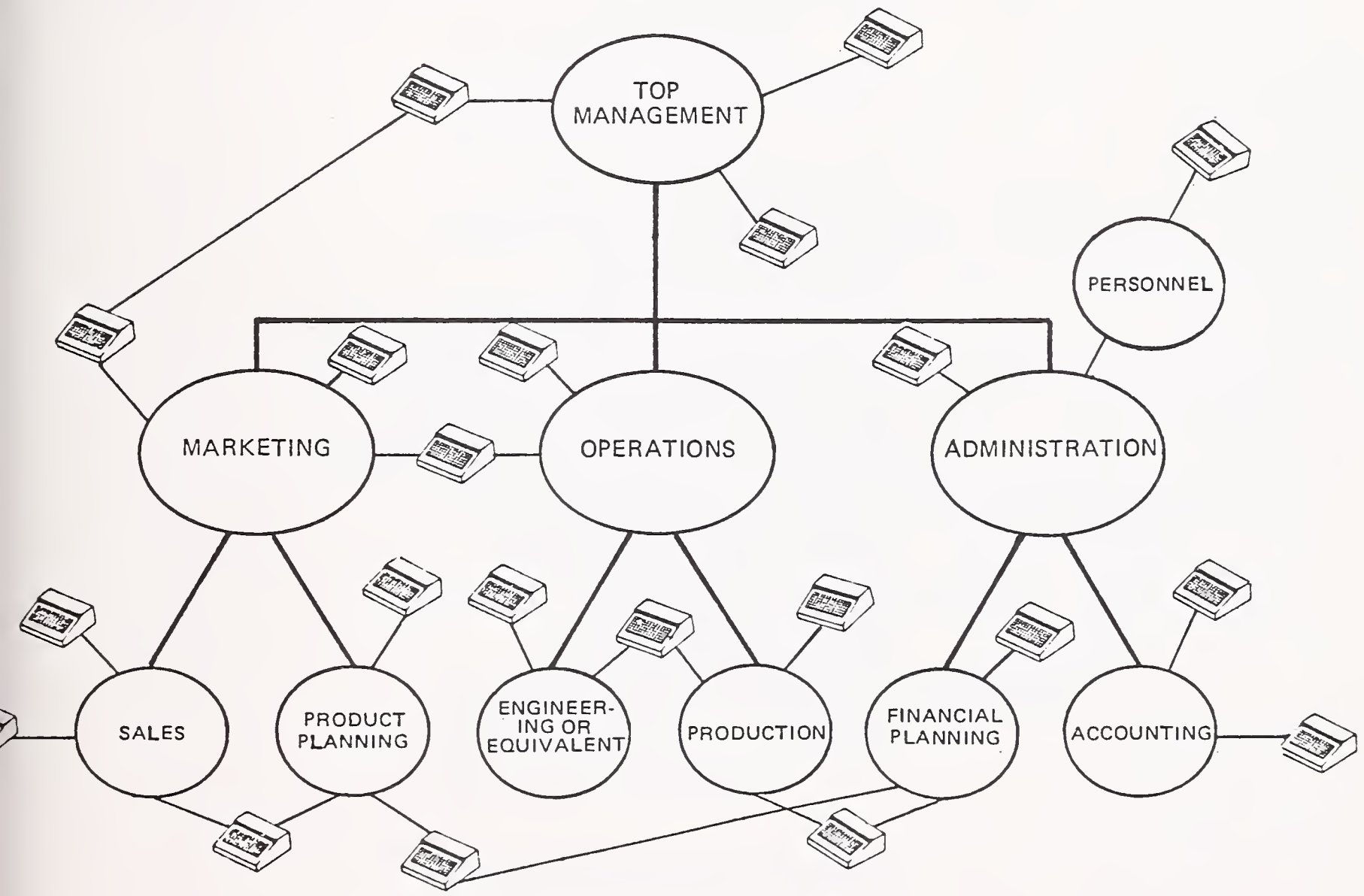
A = LARGE MAINFRAME SYSTEMS
B = MINICOMPUTERS, TERMINALS, AND OTHER
C = SMALL BUSINESS EQUIPMENT
D = PERIPHERALS

SOURCE: INPUT FIELD MAINTENANCE STUDY

IMPACT ON USERS

- DECREASES EDP MANAGERS CONTROL OVER PURCHASING
- INCREASES COMMUNICATIONS, COMPATIBILITY AND SUPPORT PROBLEMS
- MAKES APPLICATIONS MACHINES NECESSARY
- BUYERS GO TO VENDORS
- NEW METHODS OF ORGANIZATION WILL RESULT
  - BREAK UP OF EDP EMPIRES IMMINENT
  - END USERS INCREASE RESPONSIBILITY
- CONFUSION!

THE USE OF SMALL COMPUTERS IN LARGE CORPORATIONS



IMPACT ON VENDORS AND USERS

- CHANGING DISTRIBUTION CHANNELS FOR COMPUTERS:
  - VENDOR OWNED STORES
  - FRANCHISE RETAILERS
  - COMPUTER STORES

- CHANGING DISTRIBUTION CHANNELS FOR ASSOCIATED PRODUCTS AND SERVICES:
  - DIRECT MAIL SOFTWARE
  - REMOTE DIAGNOSTICS
  - COMPUTER ASSISTED INSTRUCTION

IMPACT ON VENDORS

- COMPUTER EQUIPMENT VENDORS
  - MOVE TO SYSTEMS
  - 'UNBUNDLE' SERVICES
  - PROTECT MARGINS
  - CHANGE MARKETING AND SALES
  - NEW MARKETS
- COMPUTER SERVICES COMPANIES
  - INCREASE COMPETITION IN CERTAIN SEGMENTS
  - DELIVER COMPUTERS TO CUSTOMERS
  - INCREASE INTELLIGENCE IN TERMINALS
  - OPEN NEW MARKETS
  - EXTEND EXISTING MARKETS
- REDUCES DIFFERENTIATION

EDP USER PANEL CHANGES
IN EDP BUDGETS

BUDGET CATEGORY	PERCENT OF TOTAL EDP BUDGET			IN-* CREASE (DE-CREASE) 1979 TO 1981
	1979 AVERAGE	1980 AVERAGE	1981 AVERAGE	
PERSONNEL	47%	47%	49%	4%
MAIN COMPUTERS	29	28	25	(12)
SMALL COMPUTERS/ PROGRAMMABLE TERMINALS	2	3	4	46
NON-PROGRAMMABLE TERMINALS	2	2	3	9
COMMUNICATIONS (HARDWARE/ SERVICES)	3	4	4	38
SOFTWARE (PURCHASE/ LEASE)	4	4	5	30
PROCESSING SERVICES (OUTSIDE)	2	2	1	(42)
SUPPLIES AND OTHER*	11	10	9	(11)
NUMBER OF RESPONDENTS	425	355	301	-

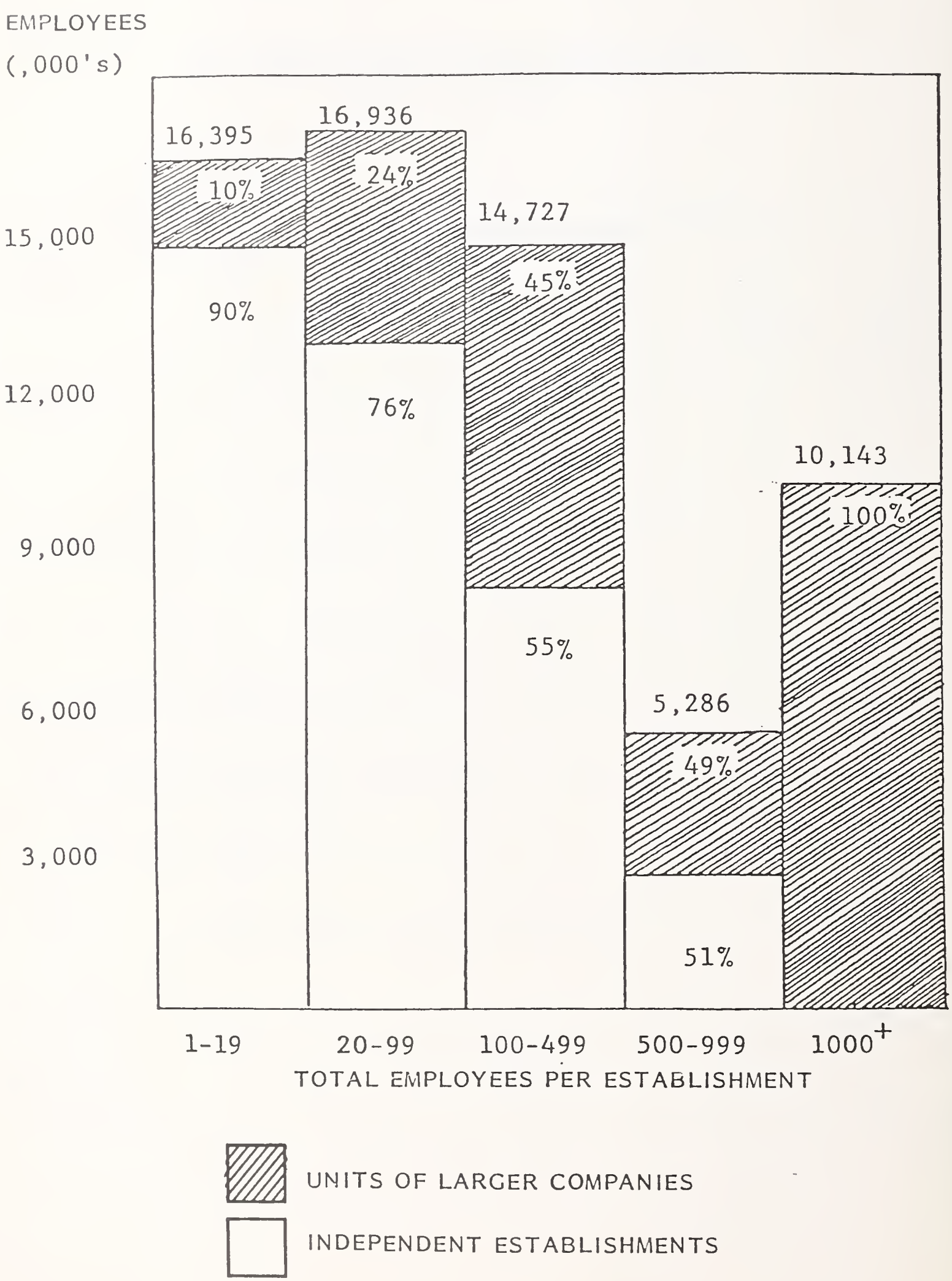
* MAY INCLUDE ADMINISTRATIVE, TELEPHONE, TRAVEL EXPENSES

SOURCE: INPUT EDP USER PANEL

MINI/MICRO COMPUTER USAGE POTENTIAL

- SMALL COMPUTER SYSTEMS BEING SOLD TO SMALL BUSINESSES
  - NEC INFORMATION SYSTEMS $15K TURNKEY SYSTEM FOR ACCOUNTING TARGETED TO COMPANIES WITH REVENUE BETWEEN $1 AND $10M
  - APPLE COMPUTER $5K TURNKEY SYSTEM FOR ACCOUNTING TARGETED TO COMPANIES WITH REVENUE BETWEEN $100K AND $1M
- 4,000,000 SMALL ESTABLISHMENTS

U.S. EMPLOYMENT (1972)
(BY TYPE AND SIZE OF ESTABLISHMENT)



MINICOMPUTER MANUFACTURER PRODUCT OFFERINGS

PRODUCT TYPE OFFERED	PROPORTION OF MANUFACTURERS
SYSTEMS ORIENTED	
DATA COMMUNICATIONS	62%
DATA ENTRY	57
DISTRIBUTED DATA PROCESSING	58
PROCESS CONTROL, REAL TIME CONTROL	42
USER ORIENTED	
SMALL BUSINESS SYSTEMS	77
WORD PROCESSING	60

SOURCE: VENDOR INTERVIEWS

PLANNED MINICOMPUTER SHIPMENTS

BY COMPUTER SERVICES VENDORS

VENDOR TYPE	PERCENT OF COMPANIES OFFERING MINICOMPUTERS
PROCESSING	63%
SOFTWARE	50%
PROFESSIONAL SERVICES	36%
OVERALL	56%

SOURCE: ADAPSO DATA

PLANNED MINICOMPUTER SHIPMENTS

BY COMPUTER SERVICES VENDORS

VENDOR TYPE	AVERAGE NUMBER OF SHIPMENTS PER VENDOR				
	1977	1978	1979	1980	AAGR (1977-1980)
PROCESSING	68	97	131	230	50%
SOFTWARE	78	134	315	630	101%
PROFESSIONAL SERVICES	5	10	20	35	91%
OVERALL	62	92	146	268	63%

SOURCE: ADAPSO DATA

MINI AND MICRO COMPUTER USAGE BY EDP MANAGERS

- INDUSTRIES WITH GREATEST NUMBER OF MINIS INSTALLED
  - SERVICES - 85%
  - TRANSPORTATION - 82%
  - RETAIL - 78%
  - EDUCATION AND MEDICAL - 74%
  - PROCESS MANUFACTURING - 71%
  - UTILITIES - 70%
  - DISCRETE MANUFACTURING - 66%
- INDUSTRIES WITH GREATEST NUMBER OF MICROS INSTALLED
  - EDUCATION AND MEDICAL - 73%
  - RETAIL - 31%
  - WHOLESALE - 30%
  - TRANSPORTATION - 29%
  - PROCESS MANUFACTURING - 26%
  - UTILITIES - 24%
  - SERVICES - 23%
- INDUSTRIES WITH GREATEST GROWTH IN MINIS
  - WHOLESALE - 77%
  - RETAIL - 75%
  - UTILITIES - 35%
  - PROCESS MANUFACTURING - 30%
  - INSURANCE - 30%
  - SERVICES - 27%
- INDUSTRIES WITH GREATEST GROWTH IN MICROS
  - EDUCATION AND MEDICAL - 50%
  - SERVICES - 8%
  - PROCESS MANUFACTURING - 5%
  - WHOLESALE - 5%

SOURCE: INPUT EDP USER PANEL

PLANNED MINI AND MICRO COMPUTER

USAGE BY EDP USER PANEL

	MINIS	MICROS
NO PLANS	24%	69%
NONE PLANNED	11	5
1 - 10	56	20
11 - 100	7	5
100 +	2	1
1979 - 1980 GROWTH	26%	6%

SOURCE: INPUT EDP USER PANEL

ECONOMIC IMPACT

- LITTLE EVIDENCE OF CHANGES IN BUYING PATTERNS
- COST OF MONEY HAVING MORE IMMEDIATE IMPACT ON SOME VENDORS
- RECESSION MAY SLOW MARKET GROWTH IN LATE 1979 AND 1980
  - INPUT ASSUMES SHALLOW RECESSION
  - RECOVERY IN 1980 (ELECTION YEAR)
- OFF-LOADING OF PEOPLE COST COULD ACCELERATE SOFTWARE PRODUCT GROWTH
- INFLATION RATES
  - 9% IN 1980
  - 6% THEREAFTER

TRAINING OF COMPUTER SERVICES PERSONNEL

- $200 M TRAINING COST FOR THE COMPUTER SERVICES INDUSTRY IN 1979 WHICH WILL DOUBLE BY 1984
- $40K TO TRAIN NEW SALES OR SALES SUPPORT HIRE
  - 17 WEEKS TO TRAIN NEW SALES HIRE
  - 10 WEEKS TO TRAIN NEW SALES SUPPORT HIRE

SOURCE: INPUT SALES AND SALES SUPPORT TRAINING STUDY

TRAINING OF COMPUTER SERVICES PERSONNEL

- SALES PRODUCTIVITY REQUIRES AN INVESTMENT IN PEOPLE TRAINING AND EXPERIENCE
  - COLLEGE HIRES TO SALES REQUIRE 14 MONTHS TO BECOME PRODUCTIVE
  - EXPERIENCED SALES PEOPLE NEED 9 MONTHS TRAINING AND FURTHER EXPERIENCE TO BECOME PRODUCTIVE
- 1% TO 1.5% OF REVENUE SHOULD BE INVESTED IN TRAINING PROGRAMS

SOURCE: INPUT SALES AND SALES SUPPORT TRAINING STUDY

COMPUTER SERVICES INDUSTRY

SALES PERSONNEL SHORTAGES

- 30% TURNOVER IN 1978
  - 27% PREDICTION FOR 1979
  - 20% PREDICTION FOR 1984
- 36% OF SALES STAFF HIRED IN 1979 FOR:
  - SALES STAFF GROWTH
  - TURNOVER
- 18% OF SALES FORCE SLOTS UNFILLED IN 1978

SOURCE: INPUT SALES AND SALES SUPPORT TRAINING STUDY

COMPUTER SERVICES INDUSTRY

SALES PERSONNEL SHORTAGES

- 10,000 TO 13,000 SALES PEOPLE
  - 15,000 TO 25,000 BY 1984
  - 4,000 TO 7,000 SALES PEOPLE HIRED IN 1984
- SALES FORCE SIZE GROWING 15% ANNUALLY
- SALES PRODUCTIVITY GROWING 7% ANNUALLY
- WOMEN
  - 10% OF STAFF IN 1979
  - 15% TARGETED IN 1980

SOURCE: INPUT SALES AND SALES SUPPORT TRAINING STUDY

SALES SUPPORT PERSONNEL SHORTAGES

- SALES SUPPORT STAFF IS GROWING 12% ANNUALLY
- 22% TURNOVER IN 1978
  - 20% PREDICTION FOR 1979
  - 17% PREDICTION FOR 1984
- 25% OF THE SALES SUPPORT STAFF HIRED IN 1979
- 13% OF THE AUTHORIZED SALES SUPPORT STAFF SLOTS UNFILLED IN 1978
- WOMEN
  - 24% OF STAFF IN 1979
  - 25% TARGETED FOR 1980

SOURCE: INPUT SALES AND SALES SUPPORT TRAINING STUDY

IMPLICATIONS

- LOST BUSINESS DUE TO PERSONNEL SHORTAGES ESTIMATED AT $200 MILLION IN 1979, WILL DOUBLE BY 1984
- PREDICTIONS WON'T HAPPEN
- SITUATION WILL GET WORSE
  - INCREASED NUMBER OF VENDORS
  - INCREASED TRAINING PROBLEMS
  - LACK OF ENTRY LEVEL TRAINING PROGRAMS
- COLLEGE HIRING/BASIC TRAINING PROGRAM
- INDUSTRY TRAINING NEEDED
- FOLLOW-UP AND IN-BRANCH TRAINING
- REDUCE TURNOVER THROUGH FRONT END SCREENING

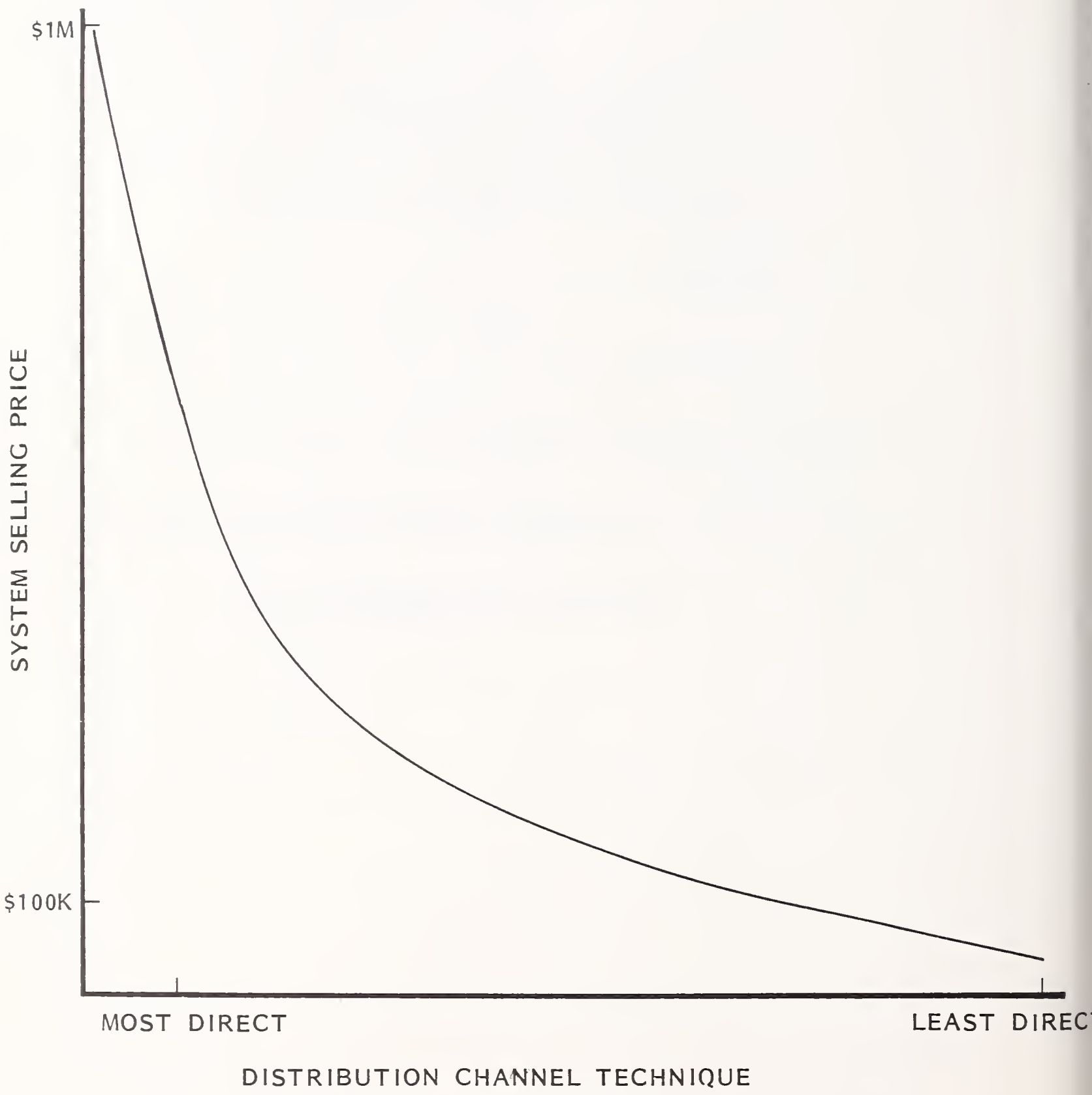
SELLING IN A SHIFTING ENVIRONMENT

DISTRIBUTION CHANNELS

- DIRECT SALES TO END USER
- DEALERS, DISTRIBUTORS AND AGENTS
- STORES
  - FRANCHISED
  - VENDOR OWNED

GOAL: TO CONTROL THE CHANNEL AS DIRECTLY AS POSSIBLE TO MAXIMIZE RETURN

DISTRIBUTION APPROACHES BASED ON SYSTEM SELLING PRICE



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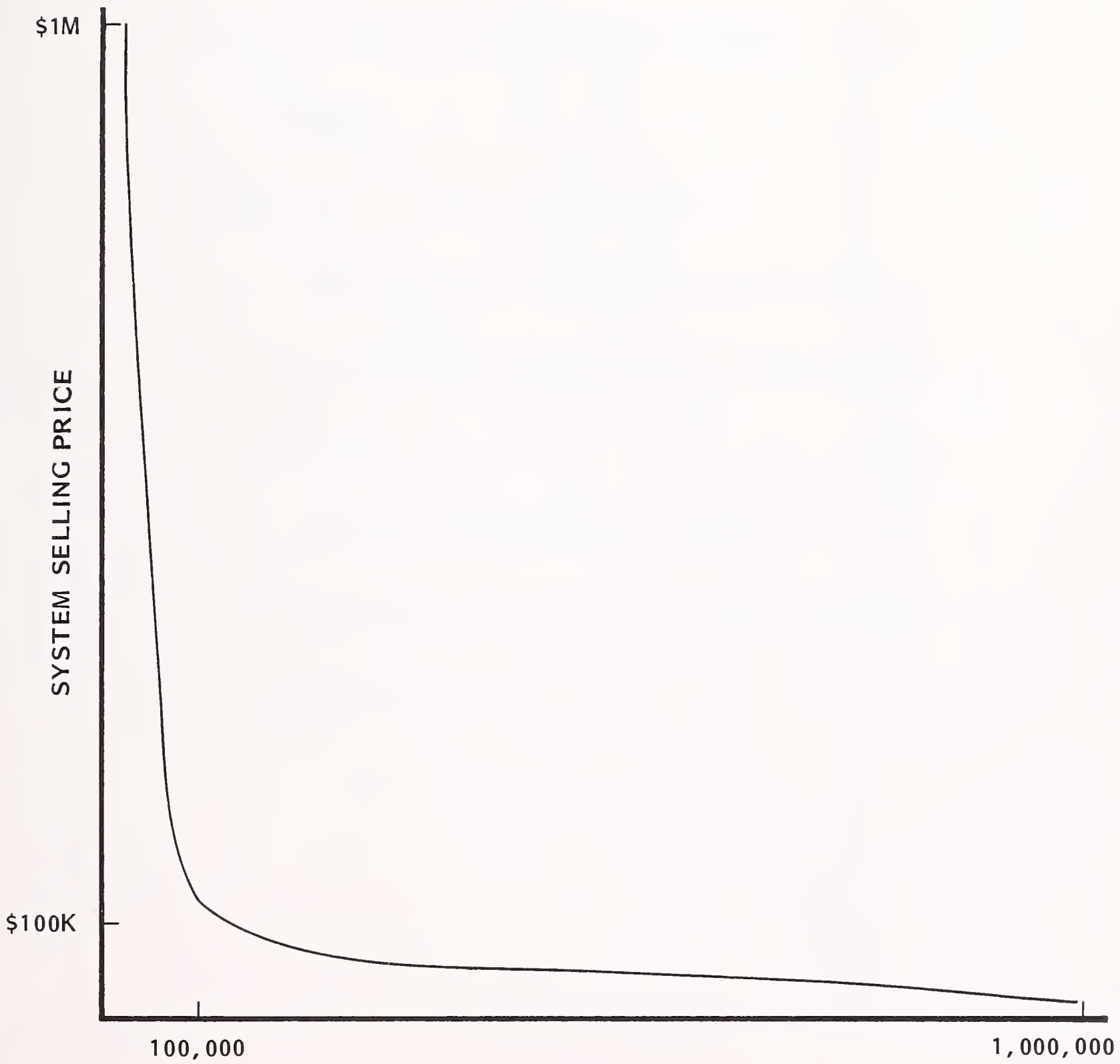
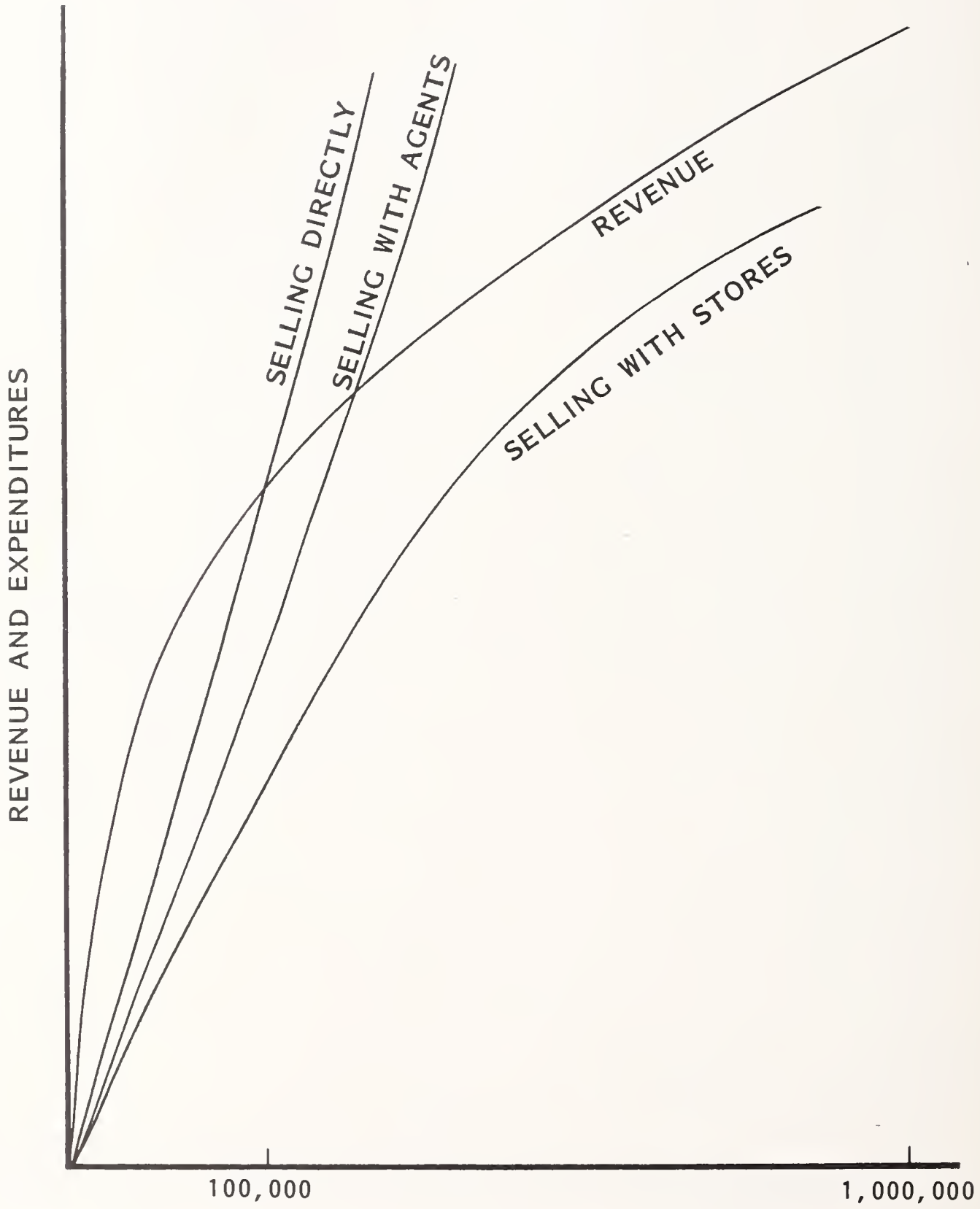
DISTRIBUTION DILEMMA



DISTRIBUTION ECONOMICS



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NEED TO SELL DIRECTLY TO THE END USER

- 10 TIMES AS MANY COMPUTER USERS IN 1983 AS 1978
  - MOSTLY NOT TRAINED IN EDP
  - USE TERMINALS AND SMALL COMPUTERS
- USER BECOMING IMPORTANT TO THE DECISION PROCESS
  - USER NOW INFLUENCES DECISION
  - USER WILL BE MAJOR DECISION MAKER AND BUYER BY 1983

CHANNEL CONTROL

- RCS COMPANIES CONTROL THEIR CHANNEL
- TURNKEY VENDORS CONTROL THEIR CHANNEL
- HARDWARE MANUFACTURERS DO NOT CONTROL THEIR CHANNELS TO THE END USER
  - OEMs
  - FRANCHISED STORES
  - DP MANAGERS

RESULT: HARDWARE MANUFACTURERS WILL DEVELOP SELL MORE DIRECTLY TO THE END USER TO CONTROL THE CHANNEL

RETAIL STORES

- 7% OF 1979 REVENUES
- 15% OF 1981 REVENUE
- 1,000 STORES IN 1979, GROWING AT 25% ANNUALLY
- USING SALESPEOPLE TO GENERATE PROSPECTS
- MINIMAL USER TRAINING PROVIDED
- MINIMAL SOFTWARE CUSTOMIZATION PERFORMED

SOURCE: INPUT VENDOR STORE STUDY

SERVICES COMPANIES SELLING STRATEGIES

- EMPHASIZE CONTROLLING THE CHANNEL TO THE END USER
- BE AWARE THAT BECOMING A CHANNEL FOR ANOTHER VENDOR HAS HIGH EXPOSURE
- FACILITIES MANAGEMENT IS A VERY VIABLE WAY TO CONTROL THE CHANNEL
  - REMOVES HEADACHES FROM END USERS
  - MAXIMIZES CONTROL
  - LEVERS EXPERTISE OF PROCESSING SERVICE COMPANY

SERVICES COMPANIES SELLING STRATEGIES

- INCREASE DIRECT SALES PRODUCTIVITY
  - CONTROL OF SALES/SUPPORT STAFF
  - LOOK FOR 'MULTIPLIER' SITUATIONS
- USE NEW SALES TECHNIQUES
  - DIRECT MAIL SOLICITATION AND QUALIFICATION
  - "TELEMARKETING"
  - GET PROSPECTS TO COME TO YOU
  - USE RETAIL STORES

MARKET SEGMENTATION AND PRODUCT

POINTS OF DIFFERENCE

(HISTORICAL PERSPECTIVE)

- PRODUCTS SOLD:
  - HARDWARE
  - SOFTWARE
  - SERVICES
    - BATCH
    - FACILITIES MANAGEMENT
    - CONSULTING
    - REMOTE COMPUTING

MARKET SHIFT

- HARDWARE COMPONENT OF PRODUCT INCREASING FOR SERVICES COMPANIES
- SOFTWARE AND SERVICE COMPONENTS FOR HARDWARE MANUFACTURERS
- TURNKEY SYSTEMS GROWING RAPIDLY AS A RESULT

QUESTION IS: WHAT IS YOUR PRODUCT?

ANSWER: SOLUTION TO END USER/MANAGEMENT PROBLEMS

MARKET SEGMENTS

- EDP MANAGER AND STAFF
  - HARDWARE
  - SOFTWARE PRODUCTS
  - PROFESSIONAL SERVICES
- INDUSTRY AND FUNCTION SPECIFIC USERS
  - PROCESSING SERVICES
  - TURNKEY SYSTEMS
  - 'USER-FRIENDLY' SYSTEM BUILDERS
  - EMPHASIS IS ON SOLUTIONS

PRODUCT POINTS OF DIFFERENCE

- SERVICE AND SUPPORT
- RELIABILITY AND MAINTENANCE
- TRAINING
- HARDWARE CHARACTERISTICS
- SOFTWARE CHARACTERISTICS
  - EASE OF USE
  - INDUSTRY OR FUNCTION SPECIFIC
  - FLEXIBLE
  - COMPATIBLE
- CONTROL CUSTOMIZATION THROUGH ADVANCED TECHNIQUES

PUTTING IT ALL TOGETHER

APPENDIX I: INDUSTRY SECTOR DATA

RESPONDENT PROFILE -

DISCRETE MANUFACTURING SECTOR*

PROFILE CHARACTERISTIC	COMPANY SIZE IN TERMS OF ANNUAL SALES/REVENUES			
	<$100 MILLION	$101 - 999 MILLION	>$1000 MILLION	OVERALL
NUMBER OF RESPONDENTS	42	59	6	107
AVERAGE ANNUAL SALES (MILLIONS)	$ 54M	$ 324M	$2,000M	$ 312M
AVERAGE TOTAL EMPLOYEES	1,100	5,780	38,600	5,783
AVERAGE EDP EMPLOYEES	38	95	355	87
EDP EMPLOYEES PER 100 TOTAL EMPLOYEES	3.4	1.6	.9	1.5
AVERAGE EDP BUDGET (MILLIONS)	$ 1.0M	$ 2.9M	$ 15.3M	$ 2.8M
EDP BUDGET PERCENT OF ANNUAL SALES	1.8%	0.9%	0.8%	.9%
EDP BUDGET PER EDP EMPLOYEE	$26,315	$30,526	$43,098	$32,184
EDP BUDGET PER TOTAL EMPLOYEE	$ 909	$ 502	$ 396	$ 484

* FROM 1979 EDP USER PANEL

ANTICIPATED CHANGES IN EDP BUDGETS FOR
RESPONDENTS IN THE DISCRETE MANUFACTURING INDUSTRY

BUDGET CATEGORY	PERCENT OF TOTAL EDP BUDGET						INCREASE (DECREASE) 1979 TO 1981 *
	1979		1980		1981		
	RANGE	AVG.	RANGE	AVG.	RANGE	AVG.	
PERSONNEL	16-70%	48%	20-65%	48%	25-70%	50%	4%
MAIN COMPUTERS	8-57	30	8-57	29	0-50	25	(14)
SMALL COMPUTERS/ PROGRAMMABLE TERMINALS	0-30	3	0-35	3	0-35	4	33
NON-PROGRAMMABLE TERMINALS	0-25	2	0-15	2	0-14	3%	11
COMMUNICATIONS (HARDWARE/ SERVICES)	0-20	3	0-15	3	0-15	4	44
SOFTWARE (PURCHASE/ LEASE)	0-20	3	0-20	4	0-20	5	36
PROCESSING SERVICES (OUTSIDE)	0-11	1	0-11	1	0-11	1	(**)
SUPPLIES AND OTHER***	0-30	10	0-28	9	0-28	9	(10)
NUMBER OF RESPONDENTS		96		88		73	-

* PERCENTAGES ARE ROUNDED
** LESS THAN 1%
*** MAY INCLUDE ADMINISTRATIVE, TELEPHONE, TRAVEL EXPENSES

SOURCE: INPUT EDP USER PANEL

PLANNED MINI AND MICRO COMPUTER USAGE

BY EDP MANAGERS IN

DISCRETE MANUFACTURING

	MINIs	MICROs
NO PLANS	23%	72%
NONE PLANNED	11	10
1 - 10	59	13
11 - 100	7	5
100 +	0	0
1979 - 1980 GROWTH	20%	3%

SOURCE: INPUT EDP USER PANEL

9

DISCRETE MANUFACTURING INDUSTRY

SIGNIFICANT PRODUCT ANNOUNCEMENTS

IN 1979

- AMERICAN MANAGEMENT SYSTEMS, GENERATION 5, FINANCIAL MANAGEMENT SYSTEM BUILDER SOFTWARE PRODUCT - IBM AND DEC HARDWARE

- COMPUTER TASK GROUP, MATRIX, BILL OF MATERIALS SOFTWARE SYSTEM - IBM HARDWARE

- RAND INFORMATION SYSTEMS, ORDER ENTRY, INVENTORY CONTROL AND DISTRIBUTION SOFTWARE SYSTEM - IBM HARDWARE

RESPONDENT PROFILE -
PROCESS MANUFACTURING SECTOR*

PROFILE CHARACTERISTIC	COMPANY SIZE IN TERMS OF ANNUAL SALES/REVENUES			
	<$100 MILLION	$101 - 999 MILLION	>$1000 MILLION	OVERALL
NUMBER OF RESPONDENTS	23	62	11	96
AVERAGE ANNUAL SALES (MILLIONS)	$ 62M	$ 356M	$ 3,509M	$ 647M
AVERAGE TOTAL EMPLOYEES	1,290	4,262	38,833	7,511
AVERAGE EDP EMPLOYEES	22	57	477	97
EDP EMPLOYEES PER 100 TOTAL EMPLOYEES	1.7	1.3	1.2	1.3
AVERAGE EDP BUDGET (MILLIONS)	$ 0.7M	$ 1.8M	$ 18.6M	$ 3.5M
EDP BUDGET PERCENT OF ANNUAL SALES	1.1%	0.5%	0.5%	.5%
EDP BUDGET PER EDP EMPLOYEE	$31,818	$31,579	$38,993	$ 36,082
EDP BUDGET PER TOTAL EMPLOYEE	$ 542	$ 422	$ 479	$ 466

* FROM 1979 EDP USER PANEL

ANTICIPATED CHANGES IN EDP BUDGETS FOR RESPONDENTS IN THE PROCESS MANUFACTURING INDUSTRY

BUDGET CATEGORY	PERCENT OF TOTAL EDP BUDGET						IN-* CREASE (DE-CREASE) 1979 TO 1981
	1979		1980		1981		
	RANGE	AVG.	RANGE	AVG.	RANGE	AVG.	
PERSONNEL	30-80%	49%	28-72%	48%	28-73%	49%	1%
MAIN COMPUTERS	0-55	28	0-55	26	0-50	25	(10)
SMALL COMPUTERS/ PROGRAMMABLE TERMINALS	0-28	3	0-29	4	0-29	4	64
NON-PROGRAMMABLE TERMINALS	0-14	2	0-16	2	0-20	2	40
COMMUNICATIONS (HARDWARE/ SERVICES)	0-35	4	0-35	5	0-30	6	40
SOFTWARE (PURCHASE/ LEASE)	0-20	3	0-20	4	0-20	4	24
PROCESSING SERVICES (OUTSIDE)	0-40	1	0-30	1	0-25	1	(22)
SUPPLIES AND OTHER**	0-50	11	0-50	9	0-26	9	(18)
NUMBER OF RESPONDENTS		87		69		59	-

* PERCENTAGES ARE ROUNDED
** MAY INCLUDE ADMINISTRATIVE, TELEPHONE, TRAVEL EXPENSES

SOURCE: INPUT EDP USER PANEL

PLANNED MINI AND MICRO COMPUTER USAGE

BY EDP MANAGERS IN

PROCESS MANUFACTURING

	MINIs	MICROs
NO PLANS	20%	72%
NONE PLANNED	9	2
1 - 10	58	26
11 - 100	10	0
100 +	3	0
1979 - 1980 GROWTH	30%	5%

SOURCE: INPUT EDP USER PANEL

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RESPONDENT PROFILE -
TRANSPORTATION SECTOR*

PROFILE CHARACTERISTIC	COMPANY SIZE IN TERMS OF ANNUAL SALES/REVENUES			
	<$100 MILLION	$101 - 999 MILLION	>$1000 MILLION	OVERALL
NUMBER OF RESPONDENTS	4	7	1	12
AVERAGE ANNUAL SALES (MILLIONS)	$ 91M	$ 299M	$ 2,800M	$ 438M
AVERAGE TOTAL EMPLOYEES	1,630	3,990	35,500	5,829
AVERAGE EDP EMPLOYEES	27	72	840	121
EDP EMPLOYEES PER 100 TOTAL EMPLOYEES	1.7	1.8	2.4	2.1
AVERAGE EDP BUDGET (MILLIONS)	$ 1.75M	$ 4.15M	$ 33.3M	$ 5.8M
EDP BUDGET PERCENT OF ANNUAL SALES	1.9%	1.4%	1.2%	1.3%
EDP BUDGET PER EDP EMPLOYEE	$64,815	$57,638	$39,642	$ 47,934
EDP BUDGET PER TOTAL EMPLOYEE	$ 1,074	$ 1,040	$ 938	$ 995

* FROM 1979 EDP USER PANEL

ANTICIPATED CHANGES IN EDP BUDGETS FOR RESPONDENTS IN THE TRANSPORTATION INDUSTRY

BUDGET CATEGORY	PERCENT OF TOTAL EDP BUDGET						INCREASE (DECREASE) 1979 TO 1981 *
	1979		1980		1981		
	RANGE	AVG.	RANGE	AVG.	RANGE	AVG.	
PERSONNEL	25-65%	48%	20-65%	46%	20-55%	46%	(4%)
MAIN COMPUTERS	12-50	29	10-50	26	12-50	25	(11)
SMALL COMPUTERS/ PROGRAMMABLE TERMINALS	0-6	**	0-10	2	0-15	5	614
NON-PROGRAMMABLE TERMINALS	0-14	4	0-14	4	0-14	4	0
COMMUNICATIONS (HARDWARE/ SERVICES)	0-19	6	0-18	8	0-17	8	33
SOFTWARE (PURCHASE/ LEASE)	0-10	2	0-10	4	0-12	5	150
PROCESSING SERVICES (OUTSIDE)	0-30	4	0-30	4	0-3	**	(80)
SUPPLIES AND OTHER***	0-17	7	0-11	5	0-12	6	(14)
NUMBER OF RESPONDENTS		12		9		7	-

* PERCENTAGES ARE ROUNDED
** LESS THAN 1%
*** MAY INCLUDE ADMINISTRATIVE, TELEPHONE, TRAVEL EXPENSES

SOURCE: INPUT EDP USER PANEL

PLANNED MINI AND MICRO COMPUTER USAGE

BY EDP MANAGERS IN

TRANSPORTATION

	MINIs	MICROs
NO PLANS	9%	71%
NONE PLANNED	9	0
1 - 10	73	29
11 - 100	0	0
100 +	9	0
1979 - 1980 GROWTH	6%	3%

SOURCE: INPUT EDP USER PANEL

RESPONDENT PROFILE -

UTILITY SECTOR*

PROFILE CHARACTERISTIC	COMPANY SIZE IN TERMS OF ANNUAL SALES/REVENUES			
	<$100 MILLION	$101 - 999 MILLION	>$1000 MILLION	OVERALL
NUMBER OF RESPONDENTS	3	17	4	24
AVERAGE ANNUAL SALES (MILLIONS)	$ 74M	$ 328M	$ 6,162M	$ 1,269M
AVERAGE TOTAL EMPLOYEES	1,235	3,077	11,267	4,212
AVERAGE EDP EMPLOYEES	29	67	176	80
EDP EMPLOYEES PER 100 TOTAL EMPLOYEES	2.3	2.2	1.6	1.9
AVERAGE EDP BUDGET (MILLIONS)	$ 1.4M	$ 2.6M	$ 7.1M	$ 3.2M
EDP BUDGET PERCENT OF ANNUAL SALES	1.9%	0.8%	0.1%	.3%
EDP BUDGET PER EDP EMPLOYEE	$ 48,276	$ 38,806	$40,341	$ 40,000
EDP BUDGET PER TOTAL EMPLOYEE	$ 1,133	$ 845	$ 630	$ 760

* FROM 1979 EDP USER PANEL

ANTICIPATED CHANGES IN EDP BUDGETS FOR RESPONDENTS IN THE UTILITY INDUSTRY

BUDGET CATEGORY	PERCENT OF TOTAL EDP BUDGET						IN-CREASE (DE-CREASE) 1979 TO 1981 *
	1979		1980		1981		
	RANGE	AVG.	RANGE	AVG.	RANGE	AVG.	
PERSONNEL	26-71%	46%	20-65%	48%	15-60%	48%	3%
MAIN COMPUTERS	11-40	25	10-40	25	10-39	24	(5)
SMALL COMPUTERS/ PROGRAMMABLE TERMINALS	0-20	3	0-23	1	0-25	2	(24)
NON-PROGRAMMABLE TERMINALS	0-12	3	0-11	3	0-11	3	20
COMMUNICATIONS (HARDWARE/ SERVICES)	0-10	3	0-10	4	0-10	5	53
SOFTWARE (PURCHASE/ LEASE)	0-42	5	0-12	3	0-10	4	27
PROCESSING SERVICES (OUTSIDE)	0-34	3	0-35	2	0-30	2	29
SUPPLIES AND OTHER**	0-28	12	0-27	13	0-27	13	5
NUMBER OF RESPONDENTS		22		17		16	-

* PERCENTAGES ARE ROUNDED

** MAY INCLUDE ADMINISTRATIVE, TELEPHONE, TRAVEL EXPENSES

SOURCE: INPUT EDP USER PANEL

PLANNED MINI AND MICRO COMPUTER USAGE

BY EDP MANAGERS IN

UTILITIES

	MINIs	MICROs
NO PLANS	20%	76%
NONE PLANNED	10	0
1 - 10	70	18
11 - 100	0	6
100 +	0	0
1979 - 1980 GROWTH	35%	1%

SOURCE: INPUT EDP USER PANEL

RESPONDENT PROFILE -
WHOLESALE SECTOR

PROFILE CHARACTERISTIC	COMPANY SIZE IN TERMS OF ANNUAL SALES/REVENUES			
	<$100 MILLION	$101 - 999 MILLION	>$1000 MILLION	OVERALL
NUMBER OF RESPONDENTS	8	11	1	20
AVERAGE ANNUAL SALES (MILLIONS)	$ 52M	$ 315M	$ 1,650M	$ 277M
AVERAGE TOTAL EMPLOYEES	435	2,502	8,750	1,988
AVERAGE EDP EMPLOYEES	13	37	200	36
EDP EMPLOYEES PER 100 TOTAL EMPLOYEES	3.0	1.5	2.3	1.8
AVERAGE EDP BUDGET (MILLIONS)	$ 0.4M	$ 0.9M	$ 6.4M	$ 1.0M
EDP BUDGET PERCENT OF ANNUAL SALES	0.8%	0.3%	0.4%	.4%
EDP BUDGET PER EDP EMPLOYEE	$30,769	$24,324	$32,000	$27,778
EDP BUDGET PER TOTAL EMPLOYEE	$ 919	$ 360	$ 731	$ 503

* FROM 1979 EDP USER PANEL

ANTICIPATED CHANGES IN EDP BUDGETS FOR

RESPONDENTS IN THE WHOLESALE INDUSTRY

BUDGET CATEGORY	PERCENT OF TOTAL EDP BUDGET						INCREASE (DECREASE) 1979 TO 1981 *
	1979		1980		1981		
	RANGE	AVG.	RANGE	AVG.	RANGE	AVG.	
PERSONNEL	22-72%	39%	15-72%	39%	15-72%	39%	(1%)
MAIN COMPUTERS	16-60	39	16-55	34	16-45	30	(23)
SMALL COMPUTERS/ PROGRAMMABLE TERMINALS	0-13	1	0-35	5	0-30	6	390
NON-PROGRAMMABLE TERMINALS	0-10	3	0-10	3	0-10	4	44
COMMUNICATIONS (HARDWARE/ SERVICES)	0-10	1	0-10	2	0-10	3	133
SOFTWARE (PURCHASE/ LEASE)	0-10	2	0-15	4	0-15	6	185
PROCESSING SERVICES (OUTSIDE)	0-38	3	0-27	2	0-3	**	(85)
SUPPLIES AND OTHER***	0-23	12	0-23	10	0-19	12	(2)
NUMBER OF RESPONDENTS		19		16		10	-

* PERCENTAGES ARE ROUNDED

** LESS THAN 1%

*** MAY INCLUDE ADMINISTRATIVE, TELEPHONE, TRAVEL EXPENSES

SOURCE: INPUT EDP USER PANEL

PLANNED MINI AND MICRO COMPUTER USAGE

BY EDP MANAGERS IN

WHOLESALE

	MINIs	MICROs
NO PLANS	25%	70%
NONE PLANNED	19	0
1 - 10	56	30
11 - 100	0	0
100 +	0	0
1979 - 1980 GROWTH	77%	5%

SOURCE: INPUT EDP USER PANEL

WHOLESALE INDUSTRY SIGNIFICANT PRODUCT
ANNOUNCEMENTS IN 1979

- INTEGRATED DATA CORP, AUTOLOGUE COMPUTER SYSTEM, TURNKEY SYSTEM FOR POINT OF SALE, INVENTORY AND ACCOUNTS RECEIVABLE FOR AUTOMOTIVE JOBBERS AND WAREHOUSE DISTRIBUTORS - TI HARDWARE

- THE AUTOMATED QUILL, PUBLIC WAREHOUSE ACCOUNTING SOFTWARE SYSTEM - DG HARDWARE

- J. BAKER & ASSOCIATES, ROUTE DISTRIBUTION SOFTWARE SYSTEM FOR BEER AND SOFTDRINK DISTRIBUTORS - DEC HARDWARE

- CUSTOM COMPUTING SYSTEMS, INTERACTIVE INVENTORY SOFTWARE SYSTEM - APPLE HARDWARE

- ANTHEM SYSTEMS, AUTOQUOTE, TURNKEY SALES PRICE QUOTATION SYSTEM - DEC HARDWARE

- DATAMOR, KOMMAND, PURCHASE ORDER MANAGEMENT AND WAREHOUSE MANAGEMENT SOFTWARE SYSTEM
  - USES FOUR/PHASE MINICOMPUTERS FOR DDP OF SHIPPING LABELS AND PRICE TICKETS
  - SOFTWARE RUNS ON IBM 370/158 HARDWARE

- DISTRONICS, TURNKEY INVOICING MANAGEMENT SYSTEM

- DOYLE DATA SYSTEMS, DISTRIBUTOR I, TURNKEY GENERAL BUSINESS AND INVENTORY CONTROL SYSTEM - DG HARDWARE

RESPONDENT PROFILE -
RETAIL SECTOR*

PROFILE CHARACTERISTIC	COMPANY SIZE IN TERMS OF ANNUAL SALES/REVENUES			
	<$100 MILLION	$101 - 999 MILLION	>$1000 MILLION	OVERALL
NUMBER OF RESPONDENTS	3	14	3	20
AVERAGE ANNUAL SALES (MILLIONS)	$ 100M	$ 303M	$ 2,575M	$ 613M
AVERAGE TOTAL EMPLOYEES	2,400	6,178	25,750	8,547
AVERAGE EDP EMPLOYEES	54	44	224	73
EDP EMPLOYEES PER 100 TOTAL EMPLOYEES	2.2	0.7	0.9	.9
AVERAGE EDP BUDGET (MILLIONS)	$ 1.2M	$ 1.5M	$ 8.4M	$ 2.5M
EDP BUDGET PERCENT OF ANNUAL SALES	1.2%	0.5%	0.3%	.4%
EDP BUDGET PER EDP EMPLOYEE	$22,530	$34,090	$37,500	$ 34,247
EDP BUDGET PER TOTAL EMPLOYEE	$ 500	$ 242	$ 326	$ 293

* FROM 1979 EDP USER PANEL

ANTICIPATED CHANGES IN EDP BUDGETS FOR
RESPONDENTS IN THE RETAIL INDUSTRY

BUDGET CATEGORY	PERCENT OF TOTAL EDP BUDGET						INCREASE (DECREASE) 1979 TO 1981 *
	1979		1980		1981		
	RANGE	AVG.	RANGE	AVG.	RANGE	AVG.	
PERSONNEL	32-72%	43%	34-65%	45%	30-65%	42%	(2%)
MAIN COMPUTERS	5-37	23	15-35	24	15-35	25	6
SMALL COMPUTERS/ PROGRAMMABLE TERMINALS	0-7	4	0-14	4	0-13	4	6
NON-PROGRAMMABLE TERMINALS	0-8	1	0-8	1	0-8	1	(13)
COMMUNICATIONS (HARDWARE/ SERVICES)	0-15	3	0-10	4	0-18	6	75
SOFTWARE (PURCHASE/ LEASE)	0-8	3	0-20	6	0-30	7	136
PROCESSING SERVICES (OUTSIDE)	0-8	2	0-5	1	0-5	1	22
SUPPLIES AND OTHER**	0-48	20	0-35	15	0-36	14	(32
NUMBER OF RESPONDENTS		14		11		10	-

* PERCENTAGES ARE ROUNDED
** MAY INCLUDE ADMINISTRATIVE, TELEPHONE, TRAVEL EXPENSES

SOURCE: INPUT EDP USER PANEL

PLANNED MINI AND MICRO COMPUTER USAGE

BY EDP MANAGERS IN

RETAIL

	MINIs	MICROs
NO PLANS	11%	69%
NONE PLANNED	11	0
1 - 10	74	23
11 - 100	4	8
100 +	0	0
1979 - 1980 GROWTH	75%	0 %

SOURCE: INPUT EDP USER PANEL

RESPONDENT PROFILE -

BANKING AND FINANCE SECTOR*

PROFILE CHARACTERISTIC	COMPANY SIZE IN TERMS OF ANNUAL SALES/REVENUES			
	<$100 MILLION	$101 - 999 MILLION	>$1000 MILLION	OVERALL
NUMBER OF RESPONDENTS	8	26	13	47
AVERAGE ANNUAL SALES (MILLIONS)	$ 38M	$ 359M	$ 5,128M	$ 1,623M
AVERAGE TOTAL EMPLOYEES	394	707	1,666	919
AVERAGE EDP EMPLOYEES	14	33	102	49
EDP EMPLOYEES PER 100 TOTAL EMPLOYEES	3.5	4.6	6.1	5.3
AVERAGE EDP BUDGET (MILLIONS)	$ 0.4M	$ 1.1M	$ 2.9M	$ 1.5M
EDP BUDGET PERCENT OF ANNUAL SALES	1.0%	0.3%	0.1%	.1%
EDP BUDGET PER EDP EMPLOYEE	$28,571	$33,333	$28,431	$30,612
EDP BUDGET PER TOTAL EMPLOYEE	$ 1,015	$ 1,556	$ 1,740	$ 1,632

* FROM 1979 EDP USER PANEL

ANTICIPATED CHANGES IN EDP BUDGETS FOR RESPONDENTS IN THE BANKING AND FINANCE INDUSTRY

BUDGET CATEGORY	PERCENT OF TOTAL EDP BUDGET						INCREASE (DECREASE) 1979 TO 1981 *
	1979		1980		1981		
	RANGE	AVG.	RANGE	AVG.	RANGE	AVG.	
PERSONNEL	15-62%	40%	18-62%	42%	20-65%	44%	10%
MAIN COMPUTERS	13-60	30	12-55	27	10-50	26	(15)
SMALL COMPUTERS/ PROGRAMMABLE TERMINALS	0-20	3	0-30	4	0-15	4	26
NON-PROGRAMMABLE TERMINALS	0-19	3	0-15	2	0-14	2	(26)
COMMUNICATIONS (HARDWARE/ SERVICES)	0-20	4	0-20	4	0-20	5	22
SOFTWARE (PURCHASE/ LEASE)	0-30	5	0-50	7	0-40	7	50
PROCESSING SERVICES (OUTSIDE)	0-100	3	0-70	3	0-50	2	(39)
SUPPLIES AND OTHER**	0-35	12	0-34	11	0-30	11	(10)
NUMBER OF RESPONDENTS		44		40		34	-

* PERCENTAGES ARE ROUNDED

** MAY INCLUDE ADMINISTRATIVE, TELEPHONE, TRAVEL EXPENSES

SOURCE: INPUT EDP USER PANEL

PLANNED MINI AND MICRO COMPUTER USAGE

BY EDP MANAGERS IN

BANKING & FINANCE

	MINIs	MICROs
NO PLANS	31%	86%
NONE PLANNED	13	0
1 - 10	53	11
11 - 100	3	3
100 +	0	0
1979 - 1980 GROWTH	9%	2%

SOURCE: INPUT EDP USER PANEL

BANKING AND FINANCE INDUSTRY
SIGNIFICANT PRODUCT ANNOUNCEMENTS IN 1979

- MONCHIK-WEBER ASSOCIATES, OPTION MONITOR SERVICE, COMPUTER AIDED TRADING INFORMATION SERVICE
- COMPUTER TASK GROUP, CUMAS, CREDIT UNION MEMBERSHIP ACCOUNTING SOFTWARE SYSTEM - BASIC/FOUR HARDWARE
- LYNCH DATA PROCESSING, SAFE PAY, TELEPHONE BILL PAYING SOFTWARE SYSTEM
- NORTHERN NUMBERS, MORTGAGE RECEIVABLES/PAYABLES SOFTWARE SYSTEM
- NATIONAL DATA CORPORATION

  - CREDIT CARD AUTHORIZATION SERVICE
  - AUTOMATED CASH CONTROL FOR AMERICAN EXPRESS AND MULTI-LOCATION AND CORRESPONDENT BANKS

- RAPIDATA

  - BONDS, DATA BASE INFORMATION SERVICE ON OTC TRADED BONDS

  - CREDIT MARKET FINANCIAL INFORMATION SERVICE

- SYSTEM GENERATION, GENERAL ACCOUNTING SOFTWARE SYSTEM FOR CREDIT UNIONS - GENERAL AUTOMATION HARDWARE
- APPLIED MANAGEMENT SYSTEMS, TURNKEY PROPERTY MANAGEMENT AND ACCOUNTING SYSTEM

RESPONDENT PROFILE -
INSURANCE SECTOR*

PROFILE CHARACTERISTIC	COMPANY SIZE IN TERMS OF ANNUAL SALES/REVENUES			
	<$100 MILLION	$101 - 999 MILLION	>$1000 MILLION	OVERALL
NUMBER OF RESPONDENTS	30	15	2	47
AVERAGE ANNUAL SALES (MILLIONS)	$ 35M	$ 195M	$ 2,021M	$ 171M
AVERAGE TOTAL EMPLOYEES	302	1,798	4,500	958
AVERAGE EDP EMPLOYEES	28	73	259	52
EDP EMPLOYEES PER 100 TOTAL EMPLOYEES	9.2	4.1	5.7	5.4
AVERAGE EDP BUDGET (MILLIONS)	$ 0.9M	$ 3.0M	$ 8.2M	$ 1.9M
EDP BUDGET PERCENT OF ANNUAL SALES	2.5%	1.5%	0.4%	1.1%
EDP BUDGET PER EDP EMPLOYEE	$32,143	$41,096	$31,660	$36,538
EDP BUDGET PER TOTAL EMPLOYEE	$ 2,980	$ 1,668	$ 1,822	$ 1,983

* FROM 1979 EDP USER PANEL

ANTICIPATED CHANGES IN EDP BUDGETS FOR RESPONDENTS IN THE INSURANCE INDUSTRY

BUDGET CATEGORY	PERCENT OF TOTAL EDP BUDGET						INCREASE* (DECREASE) 1979 TO 1981
	1979		1980		1981		
	RANGE	AVG.	RANGE	AVG.	RANGE	AVG.	
PERSONNEL	15-74%	51%	17-69%	52%	21-70%	54%	6%
MAIN COMPUTERS	0-70	28	0-66	28	0-52	26	
SMALL COMPUTERS/ PROGRAMMABLE TERMINALS	0-15	1	0-17	2	0-14	2	90
NON-PROGRAMMABLE TERMINALS	0-12	3	0-12	2	0-12	3	5
COMMUNICATIONS (HARDWARE/ SERVICES)	0-22	2	0-24	3	0-28	3	63
SOFTWARE (PURCHASE/ LEASE)	0-25	4	0-22	3	0-15	3	(14)
PROCESSING SERVICES (OUTSIDE)	0-30	2	0-30	2	0-30	1	(61)
SUPPLIES AND OTHER**	0-29	9	0-30	9	0-29	9	(8)
NUMBER OF RESPONDENTS		60		45		40	-

* PERCENTAGES ARE ROUNDED
** MAY INCLUDE ADMINISTRATIVE, TELEPHONE, TRAVEL EXPENSES

SOURCE: INPUT EDP USER PANEL

PLANNED MINI AND MICRO COMPUTER USAGE

BY EDP MANAGERS IN

INSURANCE

	MINIs	MICROs
NO PLANS	44%	83%
NONE PLANNED	14	10
1 - 10	39	7
11 - 100	3	0
100 +	0	0
1979 - 1980 GROWTH	30%	0%

SOURCE: INPUT EDP USER PANEL

RESPONDENT PROFILE - SERVICE AND OTHER INDUSTRIES SECTOR*

PROFILE CHARACTERISTIC	COMPANY SIZE IN TERMS OF ANNUAL SALES/REVENUES			
	<$100 MILLION	$101 - 999 MILLION	>$1000 MILLION	OVERALL
NUMBER OF RESPONDENTS	27	6	3	36
AVERAGE ANNUAL SALES (MILLIONS)	$ 34M	$ 411M	$ 2,272M	$ 283M
AVERAGE TOTAL EMPLOYEES	1,389	6,395	17,167	3,538
AVERAGE EDP EMPLOYEES	58	122	440	101
EDP EMPLOYEES PER 100 TOTAL EMPLOYEES	4.2	1.9	2.5	2.9
AVERAGE EDP BUDGET (MILLIONS)	$ 1.5M	$ 2.2M	$ 5.7M	$ 2.0M
EDP BUDGET PERCENT OF ANNUAL SALES	4.4%	0.5%	0.2%	.7%
EDP BUDGET PER EDP EMPLOYEE	$25,862	$18,032	$12,954	$19,802
EDP BUDGET PER TOTAL EMPLOYEE	$ 1,079	$ 344	$ 332	$ 565

* FROM 1979 EDP USER PANEL

ANTICIPATED CHANGES IN EDP BUDGETS
FOR RESPONDENTS IN THE SERVICE AND OTHER INDUSTRIES

BUDGET CATEGORY	PERCENT OF TOTAL EDP BUDGET						INCREASE (DECREASE) 1979 TO 1981 *
	1979		1980		1981		
	RANGE	AVG.	RANGE	AVG.	RANGE	AVG.	
PERSONNEL	25-80%	47%	30-80%	49%	35-80%	49%	4%
MAIN COMPUTERS	0-56	29	3-53	28	3-53	26	(10)
SMALL COMPUTERS/ PROGRAMMABLE TERMINALS	0-15	2	0-15	3	0-15	3	50
NON-PROGRAMMABLE TERMINALS	0-6	2	0-10	3	0-10	2	-
COMMUNICATIONS (HARDWARE/ SERVICES)	0-20	3	0-20	3	0-23	4	33
SOFTWARE (PURCHASE/ LEASE)	0-20	4	0-11	4	0-11	5	25
PROCESSING SERVICES (OUTSIDE)	0-30	1	0-10	1	0-9	1	-
SUPPLIES AND OTHER**	0-38	9	0-50	10%	0-38	10	10
NUMBER OF RESPONDENTS		54		47		41	-

* PERCENTAGES ARE ROUNDED
** MAY INCLUDE ADMINISTRATIVE, TELEPHONE, TRAVEL EXPENSES

SOURCE: INPUT EDP USER PANEL

PLANNED MINI AND MICRO COMPUTER USAGE

BY EDP MANAGERS IN

SERVICE AND OTHER

	MINIs	MICROs
NO PLANS	15%	69%
NONE PLANNED	0	8
1 - 10	55	15
11 - 100	30	8
100 +	0	0
1979 - 1980 GROWTH	27%	8%

SOURCE: INPUT EDP USER PANEL

ACCOUNTING INDUSTRY SIGNIFICANT PRODUCT
ANNOUNCEMENTS IN 1979

- DYLAKOR SOFTWARE SYSTEMS, DYL-AUDIT, AUDITING AND ACCOUNTING INFORMATION SOFTWARE PACKAGE - IBM HARDWARE

- CALLDATA SYSTEMS, ACCTPAK, GENERAL BUSINESS ACCOUNTING INTERACTIVE RCS SERVICE

- GENERAL ELECTRIC INFORMATION SYSTEMS, OFFERS DELOITTE HASKINS AND SELLS AUDITING SOFTWARE SYSTEMS AS AN INTERACTIVE RCS SERVICE

- EXPERTAX, SMALL BUSINESS AND INDIVIDUAL TAX RETURN PREPARATION BATCH PROCESSING SERVICE

LEGAL INDUSTRY SIGNIFICANT PRODUCT
ANNOUNCEMENTS IN 1979

- 21ST CENTURY SOFTWARE, LEGAL TIME ACCOUNTING SYSTEM, TURNKEY TIME KEEPING AND CLIENT BILLING SYSTEM - POLY MORPHIC HARDWARE

- ASPEN SYSTEMS, WESTLAW, LEGAL INFORMATION RETRIEVAL SYSTEMS

- COMPUTEK RESEARCH, BARRISTER/300, TURNKEY TIME KEEPING AND CLIENT BILLING SYSTEM - DATA GENERAL HARDWARE

MEDICAL INDUSTRY SIGNIFICANT PRODUCT
ANNOUNCEMENTS IN 1979

- APPLIED DATA COMMUNICATIONS, CLINIC II, ACCOUNTING AND PATIENT RECORD KEEPING TURNKEY SYSTEM FOR SMALL TO MEDIUM SIZED CLINICS AND MEDICAL GROUPS

- INFORMATION ACCESS SYSTEMS, MEDI-SYST, BILLING AND MEDICAL INFORMATION TURNKEY SYSTEM FOR SOLE PRACTIONERS, CLINICS AND GROUP PRACTICES - DEC HARDWARE

- AIS CORP, PFAMS, PATIENT FINANCIAL ACCOUNTING MANAGEMENT TURNKEY SYSTEM FOR SOLE PRACTITIONERS, CLINICS AND GROUP PRACTICES

- ASTRODYNE COMPUTER SERVICES, EMERGENCY MED-PHONE, BATCH PROCESSING SERVICE THAT PROVIDES OFF-DUTY PHYSICIAN PHONE NUMBERS TO PATIENTS - NCR HARDWARE

- DELAIR DATA SYSTEMS, TURNKEY BILLING SYSTEM FOR PHYSICIANS

- ESCOM ARIZONA, TURNKEY MEDICAL MANAGEMENT AND BILLING SYSTEM FOR DOCTORS AND DENTISTS - MICRODATA HARDWARE

- UMPGUA DATA FACTORY, PARIS, PATIENT BILLING AND REPORTING TURNKEY SYSTEM FOR SOLE PRACTITIONERS AND CLINICS - HEWLETT-PACKARD HARDWARE

EDUCATION INDUSTRY SIGNIFICANT PRODUCT
ANNOUNCEMENTS IN 1979

- INFORMATION ASSOCIATES, COLLEGE AND UNIVERSITY FINANCIAL AID MANAGEMENT SOFTWARE SYSTEM WHICH OPERATES INTERACTIVELY OR IN A BATCH MODE

- DISCOVER FOUNDATION, DISCOVER: THE CAREER GUIDANCE SYSTEM, SOFTWARE PACKAGE DESIGNED TO HELP STUDENTS SELECT APPROPRIATE COLLEGE/UNIVERSITY FOR STUDY - OFFERED BY IBM

- QUODATA SYSTEMS, ADDRESS FILE MANIPULATION SOFTWARE SYSTEM FOR ALUMNI OR STUDENT RECORDS - DEC HARDWARE

PLANNED MINI AND MICRO COMPUTER USAGE

BY EDP MANAGERS IN

EDUCATION & MEDICAL

	MINIs	MICROs
NO PLANS	13%	21%
NONE PLANNED	13	6
1 - 10	56	50
11 - 100	15	21
100 +	3	2
1979 - 1980 GROWTH	12%	50%

SOURCE: INPUT EDP USER PANEL

APPENDIX II: INFORMATION PROCESSING SERVICES COMPANY SUMMARIES

ANACOMP

	($ MILLION)			
	FY75	FY76	FY77	FY78
REVENUE	9	13	16	22
PRE-TAX PROFITS	1	2	2	3

GROWTH RATE: 1975 - 1978 - 36% AAGR

1977 - 1978 - 38%

CHARACTERISTICS

- SOFTWARE DEVELOPMENT
  - NCR HARDWARE
  - BANKING AND GOVERNMENT
- FACILITIES MANAGEMENT
  - STATE & LOCAL GOVERNMENT & FINANCE
  - ON-SITE SERVICES
- REMOTE COMPUTING SERVICES
  - ON-LINE INTERACTIVE PROCESSING SERVICES
  - BANKING
- MICROGRAPHICS
  - COM
- HEAVILY ACQUISITION ORIENTED
- SIGNIFICANT BANKING SERVICES VENDOR

SOURCE: INPUT CAMP

AUTOMATIC DATA PROCESSING

	($ MILLION)			
	FY75	FY76	FY77	FY78
REVENUE	163	199	245	299
PRE-TAX PROFITS	28	37	46	54

GROWTH RATE: 1975 - 1978 - 23% AAGR

1977 - 1978 - 22%

CHARACTERISTICS

- PAYROLL AND ACCOUNTING COMPUTER PROCESSING
- NETWORK PROCESSING SERVICES
- INDUSTRY SPECIALIZED SERVICES
  - LIQUOR WHOLESALERS
  - ACCOUNTING AND INVENTORY SERVICES FOR AUTO, FARM AND INDUSTRIAL DEALERS
  - ACCOUNTING SERVICES FOR BANKS AND THRIFT INSTITUTIONS
  - COMPUTERIZED RECORD KEEPING AND SECURITIES MANAGEMENT SERVICES
  - REAL ESTATE MANAGEMENT SERVICES
  - HEALTH INFORMATION SERVICES
- EXPANDING INTERNTIONALLY THROUGH ACQUISITION
  - GROWING SLOWER THAN ADP PLANNED
  - AT LEAST 20 INSTALLATIONS NOW
  - $3-4 MILLION ANNUALIZED REVENUES INCLUDING PULL THROUGHS

SOURCE: INPUT CAMP

M-PR 9

BOEING COMPUTER SERVICES

	($ MILLION) FY75	FY76	FY77	FY78
REVENUE (EXTERNAL)				80 (ESTIMATE)
PRE-TAX PROFITS				

GROWTH RATE: 1975 - 1978 AAGR

1977 - 1978

CHARACTERISTICS

- REMOTE COMPUTING SERVICES
  - UTILITY SERVICES
  - MANUFACTURING DATA SYSTEMS
  - GENERAL BUSINESS ACCOUNTING
  - AIRLINE RESERVATIONS SERVICE
  - ECONOMIC MODELING AND FORECASTING
  - COMPUTER ASSISTED INSTRUCTION
  - SCIENTIFIC & ENGINEERING SERVICES
  - PROJECT MANAGEMENT
- SOFTWARE PRODUCTS
  - MANY OF THE PRODUCTS AVAILABLE AS A SERVICE
- PROFESSIONAL SERVICES
- EDUCATION SERVICES
  - CLASSROOM TRAINING
  - COMPUTER ASSISTED INSTRUCTION

SOURCE: INPUT CAMP

BRADFORD NATIONAL CORP

	($ MILLION)			
	FY75	FY76	FY77	FY78
REVENUE	57	66	94	119
PRE-TAX PROFITS	9	5	6	7

GROWTH RATE: 1975 - 1978 - 24% AAGR

1977 - 1978 - 26%

CHARACTERISTICS

- TRUST AND SECURITIES PROCESSING SERVICES
- CORPORATE SHAREHOLDER SERVICES
  - RECORD KEEPING OF SECURITIES
  - STOCK CERTIFICATE PREPARATION
  - CALCULATION OF DIVIDENDS
  - PROXY AND REPORT MAILING
- TRUST SERVICES
  - PERSONAL TRUST ACCOUNTING
  - EMPLOYEE BENEFIT PLAN SERVICES
  - SECURITIES CUSTODY SERVICE
- SECURITIES CLEARANCE AND DRAFT COLLECTION SERVICES
- SYSTEMS DEVELOPMENT AND FACILITIES MANAGEMENT TO THE FEDERAL GOVERNMENT
- NEW YORK MEDICAID CONTRACT

SOURCE: INPUT CAMP

CDC DATA SERVICES

	($ MILLION)			
	FY75	FY76	FY77	FY78
REVENUE	221	247	300	353
PRE-TAX PROFITS				

GROWTH RATE: 1975 - 1978 - 17% AAGR

1977 - 1978 - 18%

CHARACTERISTICS

- PROFESSIONAL SERVICES
  - STRUCTURAL AND NUCLEAR ENGINEERING
- PROCESSING SERVICES
  - GENERAL BUSINESS ACCOUNTING
  - AUDIENCE RATING SERVICE (ARBITRON)
  - TICKETING SERVICE (TICKETRON)
  - BROKERAGE SERVICES
  - ELECTRONIC FUNDS TRANSFER
  - CREDIT UNION SERVICES
  - MEDICAL INFORMATION SERVICES
  - SCIENTIFIC & ENGINEERING PROCESSING
  - MANUFACTURING SYSTEMS
  - UTILITY RCS
- EDUCATION SERVICES
  - COMPUTER ASSISTED INSTRUCTION (PLATO)
  - CLASSROOM TRAINING
- EXPANDING SERVICES WORLDWIDE

SOURCE: INPUT CAMP

COMPUTER SCIENCES CORP

($ MILLION)

	FY75	FY76	FY77	FY78	FY79
REVENUE	177	220	235	277	343
PRE-TAX PROFITS	7	14	21	26	28

GROWTH RATE: 1975 - 1978 - 16% AAGR

1977 - 1978 - 18%

CHARACTERISTICS

- SYSTEMS DEVELOPMENT, MAINLY FOR GOVERNMENTS
- FACILITIES MANAGEMENT, MAINLY FOR GOVERNMENTS
- REMOTE COMPUTING SERVICES (INFONET)
  - BUSINESS PLANNING AND CONTROL
  - ENGINEERING AND STATISTICAL ANALYSIS
  - DATA MANAGEMENT
- BUYING LARGE PART OF ITEL DATA SERVICES

SOURCE: INPUT CAMP

COMPUTER TASK GROUP

	($ MILLION) FY75	FY76	FY77	FY78
REVENUE	3	5	9	14
PRE-TAX PROFITS	(.2)	(.01)	.4	.8

GROWTH RATE: 1975 - 1978 - 68% AAGR

1977 - 1978 - 56%

CHARACTERISTICS

- PROFESSIONAL SERVICES
  - BANKING
  - MANUFACTURING
  - CRIMINAL JUSTICE
- REMOTE COMPUTING SERVICES
  - RETAILING
  - DIRECT MAIL
  - ACCOUNTING & FINANCE
- TURNKEY SYSTEMS
  - BASIC/FOUR HARDWARE
  - DISTRIBUTION
  - MANUFACTURING
  - CREDIT UNIONS
- ORGANIZED BY TYPE OF SPECIALIZATION

SOURCE: INPUT CAMP

CYCARE SYSTEMS

	($ MILLION)			
	FY75	FY76	FY77	FY78
REVENUE	4	6	7	11
PRE-TAX PROFITS				

GROWTH RATE: 1975 - 1978 - 40% AAGR

1977 - 1978 - 57%

CHARACTERISTICS
- REMOTE COMPUTING SERVICES
  - MEDICAL CLINIC SERVICES
  - HOSPITAL SERVICES
  - ACCOUNTING, PATIENT REGISTRATION, SCHEDULING, INSURANCE PROCESSING
- USER SITE HARDWARE SERVICE
  - HONEYWELL LEVEL 6
  - PROCESSING DONE LOCALLY AND ON CENTRAL COMPUTER

SOURCE: INPUT CAMP

THE DUN & BRADSTREET COMPANY
(NATIONAL CSS)

($ MILLION)

	FY75	FY76	FY77	FY78
REVENUE	33	36	42	49
PRE-TAX PROFITS	4	4	6	8

GROWTH RATE: 1975 - 1978 - 24% AAGR

1977 - 1978 - 39%

CHARACTERISTICS

- REMOTE COMPUTING SERVICES
  - UTILITY (NOMAD)
  - FINANCIAL MODELING
  - SCIENTIFIC & ENGINEERING
- FACILITIES MANAGEMENT
- PROFESSIONAL SERVICES
- MOVED INTO MINICOMPUTER/USHS WITH 3200
- ZYTRON ACQUIRED
  - $20 MILLION MICROFORM SERVICES COMPANY
  - TURNKEY SYSTEMS FOR NUCLEAR POWER STATIONS
- MOVED MONTH-TO-MONTH TO LONG TERM CONTRACTS
- GROWTH IN:
  - COMPUTER SERVICES MARKET
  - DELIVERY SYSTEMS FOR D&B

SOURCE: INPUT CAMP

ELECTRONIC DATA SYSTEMS

	($ MILLION)			
	FY75	FY76	FY77	FY78
REVENUE	124	133	164	218
PRE-TAX PROFITS	27	27	29	32

GROWTH RATE: 1975 - 1978 - 21% AAGR

1977 - 1978 - 33%

CHARACTERISTICS
- FACILITIES MANAGEMENT
  - HEALTH INSURANCE PROCESSING SERVICES
  - BANKS
  - SAVINGS & LOAN ASSOCIATIONS
  - CREDIT UNIONS
  - RETAILERS
- PERSONAL COMPUTING INTEREST
- ORGANIZATION CHANGING

SOURCE: INPUT CAMP

GENERAL ELECTRIC INFORMATION SERVICES

	($ MILLION)			
	FY75	FY76	FY77	FY78
REVENUE (TOTAL)				$210
PRE-TAX PROFITS				

GROWTH RATE: 1975 - 1978

1977 - 1978

- REMOTE COMPUTING SERVICES
  - UTILITY SERVICES
  - FINANCIAL ANALYSIS SERVICES
  - SECURITIES SERVICES
  - GENERAL BUSINESS SERVICES
  - SCIENTIFIC & ENGINEERING SERVICES
- PROFESSIONAL SERVICES
  - OFFERED TO PROCESSING SERVICES CLIENTS
- RECENTLY ANNOUNCED MARK 3000 IBM BASED RCS
- INTERNATIONAL VENDOR
  - TOOK OVER HIS IN EUROPE
  - JV WITH DENTSU IN JAPAN
- MANY AUTHORS AND PIGGYBACK RELATIONSHIPS
- MARKLINK BASED ON T.I MINI

SOURCE: INPUT CAMP

GRUMMAN DATA SYSTEMS

	($ MILLION)			
	FY75	FY76	FY77	FY78
REVENUE	53	57	70	79
PRE-TAX PROFITS				

GROWTH RATE: 1975 - 1978

1977 - 1978

CHARACTERISTICS
- REMOTE COMPUTING SERVICES
  - INSURANCE SERVICES
  - FINANCIAL PLANNING AND REPORTING
  - LITIGATION SERVICES
  - UTILITY
- BATCH PROCESSING
  - DATA ENTRY
- ENTERING MICROPUBLISHING

SOURCE: INPUT CAMP

HONEYWELL

	($ MILLION)			
	FY75	FY76	FY77	FY78
REVENUE (TOTAL)	2,292	2,495	2,911	3,548
PRE-TAX PROFITS	99	167	227	

GROWTH RATE: 1975 - 1978 - 16% AAGR

1977 - 1978 - 22%

CHARACTERISTICS
- REMOTE COMPUTING SERVICES
  - FINANCE
  - MANUFACTURING
  - SCIENTIFIC & ENGINEERING
  - GRAPHICS
- SOFTWARE LARGELY BUNDLED

SOURCE: INPUT CAMP

IBM

	($ MILLION)			
	FY75	FY76	FY77	FY78
REVENUE (TOTAL)	14,437	16,304	18,133	21,076
PRE-TAX PROFITS	3,721	4,519	5,092	5,798

GROWTH RATE: 1975 - 1978 - 14% AAGR

1977 - 1978 - 16%

CHARACTERISTICS
- PROCESSING SERVICES OUTSIDE THE U.S.
- CLOSED SOME PROCESSING SERVICES ACTIVITIES IN AUSTRALIA
- EXPANDING SOFTWARE AND SERVICES REVENUES

SOURCE: INPUT CAMP

INFORMATICS

	($ MILLION)			
	FY75	FY76	FY77	FY78
REVENUE	39	59	76	93
PRE-TAX PROFITS				

GROWTH RATE: 1975 - 1978 - 34% AAGR

1977 - 1978 - 22%

CHARACTERISTICS

- PROFESSIONAL SERVICES
  - INCLUDING PMI
- REMOTE COMPUTING SERVICES
  - DISTRIBUTION (MHDS)
  - LEVEL 6 BASED USHS FOR DISTRIBUTION
  - IBM BASED RCS
- SOFTWARE PRODUCTS
  - SYSTEMS SOFTWARE (MARK IV)
  - ACCOUNTING
  - BANKING
  - PERSONNEL
  - MANUFACTURING
  - INSURANCE
- INFORMATION HANDLING
  - DATA COLLECTION AND ANALYSIS
  - PHOTOCOMPOSITION
  - MEDICAL AND LITIGATION INFORMATION SYSTEMS

SOURCE: INPUT CAMP

9

ITEL DATA SERVICES

	($ MILLION)			
	FY75	FY76	FY77	FY78
REVENUE	26	42	80	99
PRE-TAX PROFITS				

GROWTH RATE: 1975 - 1978 - 57% AAGR

1977 - 1978 - 24%

CHARACTERISTICS
- CONGLOMERATE
  - BUSINESS ACCOUNTING
  - TRANSPORTATION
  - BANKING
  - SCIENTIFIC & ENGINEERING
  - INSURANCE
- BATCH SERVICES
- EXPANDED BY ACQUISITION
- NEW SELLING MANY PROPERTIES

SOURCE: INPUT CAMP

MARTIN MARIETTA DATA SYSTEMS

	($ MILLION)			
	FY75	FY76	FY77	FY78
REVENUE	43	49	55	65
PRE-TAX PROFITS				

GROWTH RATE: 1975 - 1978 - 15% AAGR

1977 - 1978 - 18%

CHARACTERISTICS

- REMOTE COMPUTING SERVICES FOR MANUFACTURERS
  - GENERAL BUSINESS ACCOUNTING
  - INVENTORY, PRODUCT AND ENGINEERING CONTROL
  - PLANNING
  - DISTRIBUTION/ORDER ENTRY
- PROFESSIONAL SERVICES - SYSTEMS IMPLEMENTATION
- SOFTWARE
  - MAS PRODUCT LINE
  - DEVELOPED FROM HOSKYNS PACKAGE
- IBM BASED RCS FOR FEDERAL GOVERNMENT

SOURCE: INPUT CAMP

MCAUTO

	($ MILLION) FY75	FY76	FY77	FY78
REVENUE	56	77	112	128
PRE-TAX PROFITS				

GROWTH RATE: 1975 - 1978 - 32% AAGR

1977 - 1978 - 13%

CHARACTERISTICS
- REMOTE COMPUTING SERVICES
  - IBM AND CDC BASED
  - MANUFACTURING
  - GRAPHICS (UNITED COMPUTING CORP.)
  - GENERAL BUSINESS ACCOUNTING
  - ON-LINE COLLECTION
  - UTILITIES
  - INSURANCE
  - TRANSPORTATION
- PROFESSIONAL SERVICES
- APPLICATIONS SOFTWARE
- HOSPITAL SERVICES (ALMOST 50% OF BUSINESS)
  - NETWORK BASED
  - USHS USING DEC HARDWARE
- EXPANDING IN COMPUTER INDUSTRY

SOURCE: INPUT CAMP

PLANNING RESEARCH CORP

	($ MILLION)			
	FY75	FY76	FY77	FY78
REVENUE (TOTAL)	135	148	186	223
PRE-TAX PROFITS	6	6	8	10

GROWTH RATE: 1975 - 1978 - 18% AAGR

1977 - 1978 - 20%

CHARACTERISTICS

- REMOTE COMPUTING SERVICES
- BATCH SERVICES
- FACILITIES MANAGEMENT
  - FEDERAL GOVERNMENT
- PROFESSIONAL SERVICES
  - GOVERNMENTS
  - HEALTH INSURANCE
  - BANKING
  - SAFETY ENGINEERING
  - MANAGEMENT CONSULTING
- REALTRONICS
  - HEWLETT-PACKARD BASED TURNKEY SYSTEM
  - REAL ESTATE MULTIPLE LISTING SERVICE
  - VERY SUCCESSFUL
- NON-COMPUTER SERVICES ARE ALSO PROFESSIONAL SERVICES

SOURCE: INPUT CAMP

QUANEX MANAGEMENT SCIENCES CORP

	($ MILLION)			
	FY75	FY76	FY77	FY78
REVENUE (TOTAL)	125	128	145	187
PRE-TAX PROFITS	20	16	15	23

GROWTH RATE: 1975 - 1978 - 14% AAGR

1977 - 1978 - 29%

CHARACTERISTICS
- REMOTE COMPUTING SERVICES
  - MANUFACTURING
  - BUSINESS SERVICES
  - COMPUTERIZED ANALYSES OF FOOTBALL FILMS (18 NFL CLUBS SUBSCRIBE)
- PROFESSIONAL SERVICES
- FACILITIES MANAGEMENT
- FORMEDAS SUBSIDIARY OF QUANEX CORP (1977)

SOURCE: INPUT CAMP

SUN INFORMATION SERVICES CO.

	($ MILLION)			
	FY75	FY76	FY77	FY78
REVENUE				
PRE-TAX PROFITS				

GROWTH RATE: 1975 - 1978

1977 - 1978

CHARACTERISTICS

- REMOTE COMPUTING SERVICES
  - BANKING AND FINANCE
  - LEGAL SERVICES
  - MANUFACTURING
  - SCIENTIFIC & ENGINEERING SERVICES
- BATCH SERVICES
  - DATA ENTRY
  - COM
- PROFESSIONAL SERVICES
  - ADD-ONS TO OTHER SERVICES
- SOFTWARE
  - PROJECT REPORTING
  - GRAPHICS
- TURNKEY SYSTEMS
  - BULK TERMINAL SYSTEMS
- DISASTER RECOVERY SERVICES

SOURCE: INPUT CAMP

9

TYMSHARE

	($ MILLION)			
	FY75	FY76	FY77	FY78
REVENUE (TOTAL)	64	82	101	150
PRE-TAX PROFITS	10	13	16	19

GROWTH RATE: 1975 - 1978 - 33% AAGR

1977 - 1978 - 49%

CHARACTERISTICS

- SERVICES
  - GENERAL BUSINESS ACCOUNTING
  - CREDIT CARD PROCESSING
  - TAX SERVICES
  - MEDICAL
  - GOVERNMENT
  - PETROCHEMICAL
  - TRAVEL AGENCIES
  - BANKING
  - SCIENTIFIC & ENGINEERING
  - UTILITY
- BATCH SERVICES
- SOFTWARE
  - PERSONNEL
  - MANUFACTURING
  - BANKING
- PROFESSIONAL SERVICES
  - SUPPORT CLIENTS
- TURNKEY SYSTEMS
  - DEC 2020
  - COMMUNITY HOSPITALS
  - MANUFACTURING
- EXPAND INTERNATIONALLY THROUGH TV
- LINKING DATA AND OFFICE PROCESSING
- VAN-TYMNET

SOURCE: INPUT CAMP

M-PR9

UNITED COMPUTING SYSTEMS, INC.

	($ MILLION)			
	FY75	FY76	FY77	FY78
REVENUE	18	34	36	76
PRE-TAX PROFITS				

GROWTH RATE: 1975 - 1978 - 62% AAGR

1977 - 1978 -111%

CHARACTERISTICS

- REMOTE COMPUTING SERVICES
  - UTILITY
  - BUSINESS PLANNING & FORECASTING
  - TAX ACCOUNTING
  - SCIENTIFIC & ENGINEERING SERVICES
  - GRAPHICS
  - TEXT PROCESSING
- BATCH SERVICES
- SOFTWARE
  - SAME AS ON NETWORK
- TURNKEY SYSTEMS
  - GRAPHICS
- AGGRESSIVE EXPANSION THROUGH ACQUISITION IN U.S. AND EUROPE
  - LUCS
  - ON-LINE SYSTEMS
  - CALMA

SOURCE: INPUT CAMP

WYLY CORP

	($ MILLION)			
	FY75	FY76	FY77	FY78
REVENUE (TOTAL)	65	63	71	79
PRE-TAX PROFITS	(6)	(4)	(3)	5

GROWTH RATE: 1975 - 1978 - 7% AAGR

1977 - 1978 11%

CHARACTERISTICS

- REMOTE COMPUTING SERVICES
  - UTILITY
  - SCIENTIFIC & ENGINEERING SERVICES
  - GENERAL BUSINESS (LITTLE)
- BATCH
- SOFTWARE
  - BANKING
  - FINANCIAL CONTROL
  - SYSTEMS SOFTWARE
- TURNKEY SYSTEMS
  - DEC HARDWARE
  - NUMERICAL CONTROL
- EUROPE ACCOUNTS FOR 60% OF REVENUES
- RESTRUCTURED FINANCIALLY - MUST PERFORM

SOURCE: INPUT CAMP

XEROX COMPUTER SERVICES

	($ MILLION) FY75	FY76	FY77	FY78
REVENUE			35	46
PRE-TAX PROFITS				

GROWTH RATE: 1975 - 1978

1977 - 1978 - 31%

CHARACTERISTICS
- REMOTE COMPUTING SERVICES
  - MANUFACTURING AND DISTRIBUTION
  - STATE & LOCAL GOVERNMENT
- SOFTWARE
  - ARISTA PACKAGE
- EXPANDING THROUGH INTERNAL GROWTH
- INTEGRATING USER SITE HARDWARE

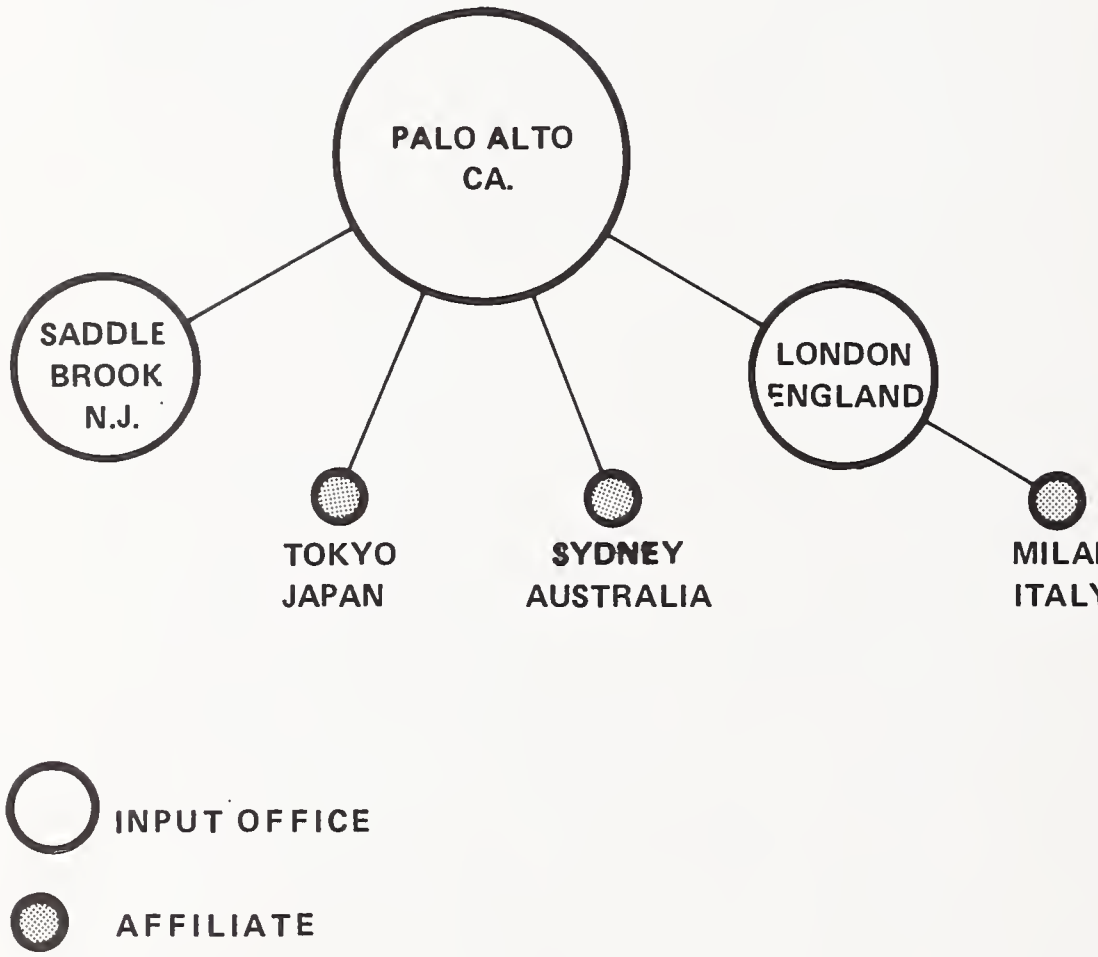
SOURCE: INPUT CAMP

APPENDIX III: INPUT BUSINESS SERVICES

VI. INPUT BUSINESS SERVICES

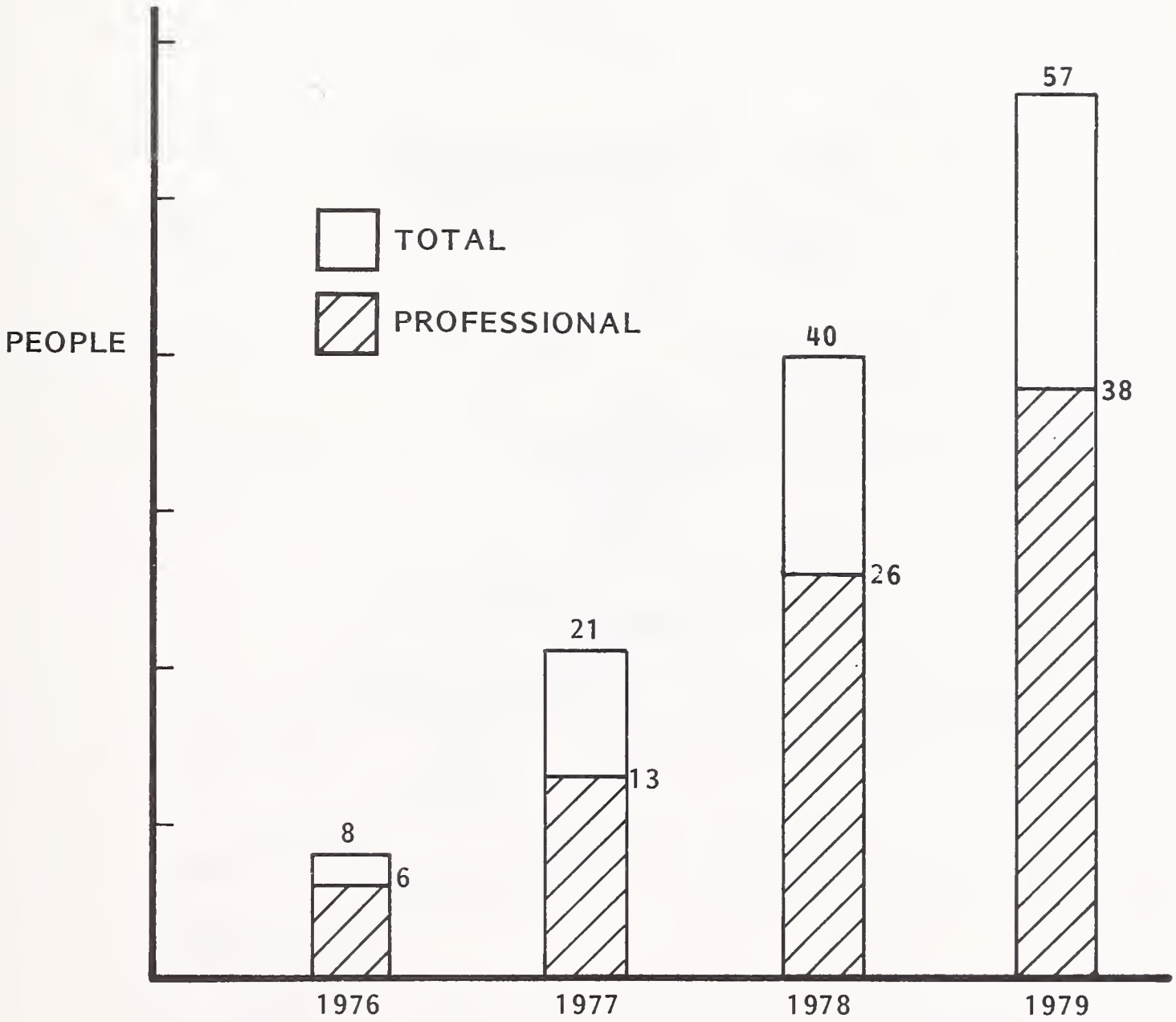
- SUBSCRIPTION PROGRAMS
- MULTICLIENT STUDIES
- CUSTOM CONSULTING

INPUT GEOGRAPHIC ORGANIZATION



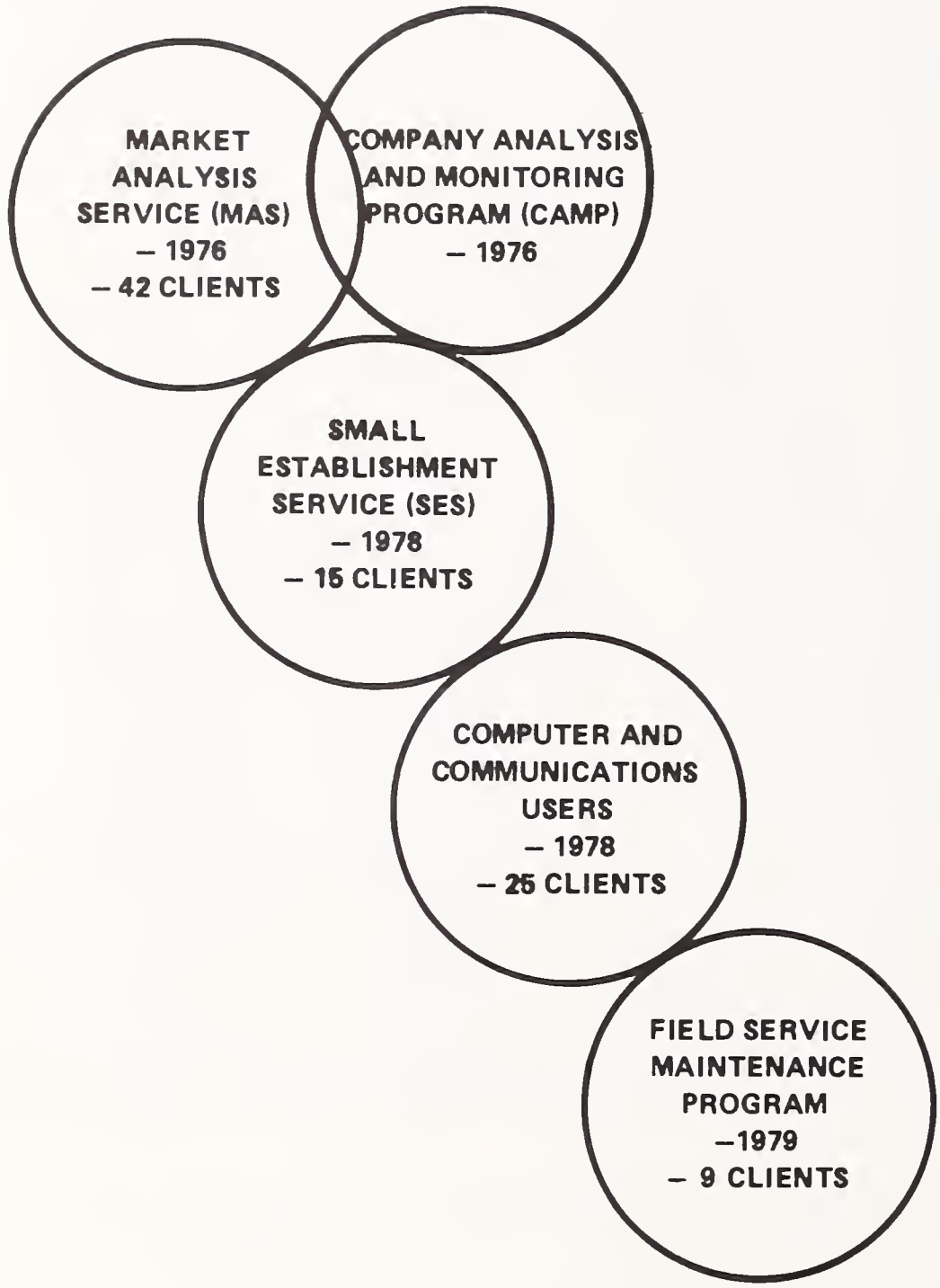
M-PR 9

INPUT ACTIVITIES
1979



INPUT

PROGRAMS


MARKET ANALYSIS SERVICE (MAS) – 1976 – 42 CLIENTS
COMPANY ANALYSIS AND MONITORING PROGRAM (CAMP) – 1976
SMALL ESTABLISHMENT SERVICE (SES) – 1978 – 15 CLIENTS
COMPUTER AND COMMUNICATIONS USERS – 1978 – 25 CLIENTS
FIELD SERVICE MAINTENANCE PROGRAM –1979 – 9 CLIENTS

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IN

MARKET ANALYSIS SERVICE

1979 REPORTS

IMPACT REPORTS

- TRAINING SALES AND SALES SUPPORT PERSONNEL IN THE COMPUTER SERVICES INDUSTRY
- MARKETING SYSTEMS SOFTWARE PRODUCTS
- OPPORTUNITIES IN EDUCATION SERVICES
- TURNKEY SYSTEMS MARKETS
- "OFFICE OF THE FUTURE" OPPORTUNITIES FOR SERVICES COMPANIES

INDUSTRY REPORTS

- COMPUTER SERVICES OPPORTUNITIES IN BANKING AND FINANCE
- COMPUTER SERVICES OPPORTUNITIES WITH INSURANCE CARRIERS
- COMPUTER SERVICES OPPORTUNITIES WITH INSURANCE AGENTS AND BROKERS

ANNUAL REPORT

- MAS ANNUAL REPORT

COMPANY ANALYSIS AND MONITORING PROGRAM

- COMPUTERIZED DATA BASE OF COMPANIES IN THE INFORMATION PROCESSING SERVICES INDUSTRY
  - FINANCIAL DATA
  - LINE OF BUSINESS DATA
  - GEOGRAPHIC CONCENTRATION
- DATA BASE INQUIRY AND ANALYSIS
- REPORTS OF INDIVIDUAL COMPANIES
- QUARTERLY FINANCIAL COMPARISONS

SMALL ESTABLISHMENT SERVICE

- ANALYSES OF MARKETS
  - COMPUTER SERVICES
  - COMPUTER EQUIPMENT
  - COMMUNICATIONS PRODUCTS AND SERVICES
  - OFFICE EQUIPMENT
  - OFFICE SERVICES
- SMALL ESTABLISHMENTS: LESS THAN 500 EMPLOYEES
- STAND-ALONE COMPANIES AND BRANCHES (4 MILLION IN U.S.)
- REPORTS, CONSULTING SERVICES
- CLIENTS INCLUDE:
  - COMPUTER SCIENCES
  - CITIBANK, N.A.
  - CONTROL DATA
  - DIGITAL EQUIPMENT
  - EXXON ENTERPRISES
  - HONEYWELL
  - INTERNATIONAL TELEPHONE AND TELEGRAPH
  - LOCKHEED ELECTRONICS

SMALL ESTABLISHMENT SERVICE

1979 REPORTS

IMPACT REPORTS

- VENDOR STORES
- LEADING EDGE VENDORS

INDUSTRY REPORTS

- MEDICAL OFFICES AND CLINICS
- INSURANCE AGENTS
- NON-DURABLE GOODS WHOLESALERS

ANNUAL REPORT

- SES ANNUAL REPORT

PLANNING SERVICE FOR COMPUTER AND COMMUNICATIONS USERS

- ANALYSES OF ISSUES FROM USER VIEWPOINT
- REPORTS, CONSULTING, CONFERENCES
- "VENDOR WATCH" SERVICE
- RESIDUAL VALUE SERVICE
- CLIENTS INCLUDE:
  - FORD MOTOR COMPANY
  - GENERAL MOTORS
  - CHASE MANHATTAN
  - AT&T
  - UNITED AIRLINES
  - DUN & BRADSTREET
  - INA
  - STANDARD OIL OF INDIANA
  - LEVI STRAUSS

PLANNING SERVICE FOR COMPUTER AND COMMUNICATIONS USERS

1979 REPORTS

IMPACT REPORTS

- PLANNING: A METHODOLOGY FOR PROTECTING YOUR EDP INVESTMENT
- SOFTWARE DIRECTIONS: LANGUAGES, OPERATING SYSTEMS, DBMS AND DDP
- MASS STORAGE AND OTHER PERIPHERAL DEVICES: COST, PERFORMANCE AND FUTURE DIRECTIONS

VENDOR WATCH REPORTS

- IMPACT OF THE 8100
- IMPACT OF THE 4300
- FUTURE OF IBM PERIPHERALS
- FUTURE OF LARGE PLUG COMPATIBLE MAINFRAMES
- TRAINING FOR THE 1980's

ANNUAL REPORT

- USER ANNUAL REPORT

FIELD SERVICE PLANNING AND INFORMATION PROGRAM

- ANALYSES OF ISSUES FROM FIELD SERVICE PERSPECTIVE
- REPORTS, CONSULTING SERVICES
- HARDWARE AND OPERATING SYSTEM SOFTWARE ADDRESSED
- CLIENTS INCLUDE:
  - HONEYWELL INFORMATION SYSTEMS
  - IBM
  - HEWLETT-PACKARD
  - BELL NORTHERN RESEARCH
  - ITT-COURIER
  - DIGITAL EQUIPMENT CORP.
  - TEKTRONIX
  - CODEX

1979 MULTICLIENT STUDIES

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